Family Coryphaenoididae

Body long, trunk short, tail long, tapering and compressed. Mouth small, protractile, terminal, subterminal or inferior; when mouth inferior snout prominent by enlarged nasals which united in median line and supported below by united preorbitals. Usually barbel at chin. Teeth mostly small, uniserial or in villiform bands in both jaws. Bases of skull very thin, head often cavernous, especially on snout and suborbital regions. Gill opening wide, gill membranes free from or narrowly joined to isthmus. Gill rakers long and lanceolate or reduced spinescent tubercles. Gills 4, slit behind last sometimes reduced. Pseudobranchiae usually glandular and reduced or absent. Branchiostegals 6 to 8. Air bladder usually present, physoclistic. Scales usually ctenoid, carinate or spinuliferous, imbricate, seldom cycloid. Lateral line present, axial. Muciferous canals of head well developed. Short anterior dorsal with second simple rays usually pungent to spine like, followed by several branched rays. A long, low, posterior dorsal, confluent around tail with long anal, which usually deeper or high. Pseudocaudal may be developed, though true caudal normally absent. Paired fins present. Pectorals with 3 to 6 pterygials. Ventrals below or little behind pectorals, with 6 to 12 branched rays and usually preceded by short simple ray.

These fishes are usually known as the Macruridae or Macrouridae, though as Macrurus has been found to give way to earlier Coryphaenoides the family name Coryphaenoididae follows. The attempt here is to include all the known species.

The macrurids are found in all seas of the globe, in depths of from 70 to upwards of 5000 meters, though living chiefly in tropical and temperate regions. The macrurids doubtless evolved in more recent geological epochs, their affiliations suggesting the more littoral gadoids. As Weber and Beaufort say "They are probably still in course of local development and no conspicuous breaks have yet been established by dying out of intermediate forms to separate them in more conspicuous groups".

Analysis of Genera

a[1]. First gill arch without membranous fold restricting first gill slit; gill rakers lanceolate; second dorsal ray not enlarged or spine like; hind part of dorsal more developed than hind part of anal.

b[1]. Two separate dorsal fins.

c[1]. Macruroninae. Vomerine teeth present; jaw teeth uniserial or biserial; anal mostly elevated forward.

d[1]. Front of anal lobate; vent anterior, nearly between ventrals; ventral area striate.-----Steindachnera.

d[2]. Front of anal not lobate; vent posterior, close before anal; no ventral striae.*--------Maeruronus.

c[2]. Bathygadinae. No vomerine teeth; teeth in bands in jaws; anal uniformly low.

e[1]. Mouth terminal; no lateral scaleless nuchal fossa; scales cycloid, not modefied at dorsal and anal bases; gill rakers long, slender; second dorsal much higher than anal.---------- ---------- Bathygadus.

e[2]. Mouth inferior, snout greatly extended, scaleless fossa each side of nape; scales rough, strongly modified series along front parts of dorsal and anal bases; second dorsal little higher than anal.---------- Trachyrinchus.

b[2]. Lyconinae. Dorsal single, front rays mostly elevated; head moderate; few enlarged canines; teeth on vomer; mouth terminal; no barbel; scales cyloid; ventrals not reduced.---------- Lyconus.

b[3]. Macruroidinae. Dorsal single, uniformly low; head very massive, soft; teeth in bands, in jaws only; mouth inferior, below and behind eye; ventrals very small or absent.

f[1]. Ventrals small, rays 5; pectoral 25; mouth behind eye; gill membranes free from isthmus; gill rakers long; pseudobranchiae present.----- ----------Squalogadus.

f[2]. Ventrals absent; pectoral 16; mouth below eye; gill membranes joined to isthmus; gill rakers short; no pseudobranchiae.---------- ---------- Macrouroides.

a^2. First gill arch with membranous fold restricting first gill slit; gill rakers tubercular; second dorsal ray modified spine, often serrate on front edge; anal more developed than second dorsal; teeth in jaws only; no pseudobranchiae.

g^1. Coryphaenoidinae. Pectorals not pedunculated; pectoral actinostes 4 to 6.

h^1. Branchiostegals 6; gill membranes broadly united, scarcely extended forward ventrally; lower gill rakers less than 15; scales usually moderate; no striate regions on under side of trunk; vent usually close before anal, not or rarely preceded by naked area on fossa; large, wide ranging species.

i^1. No barbel; premaxillary teeth unequal, in narrow band separated by interspace from marginal series of small teeth, of which one enlarged anterolateral canine; mouth terminal; anal not much higher than second dorsal; Antarctic.---------- ---------- Cynomaerurus.

i^2. Barbel always present; no canines; mouth not terminal; anal much higher than dorsal.

j[1]. Snout little extended; no strongly marked ridges on head and suborbital ridge not extending to preopercle; dorsal spine trenchant on front edge, usually serrate.---------

----------Coryphaenoides.

j[2]. Snout usually greatly extended; head with prominent ridges furnished with modified scales and suborbital ridge extended to preopercle; dorsal spine smooth, rounded anteriorly.----------

---------- Coelorhinchus.

h[2]. Branchiostegals 7; gill membranes narrowly united, gill opening extended forward ventrally; lower gill rakers more than 15; scales large, thin, smooth or weakly denticulated; ventral regions with fine, parallel lines, alternating dark and silvery; vent close before anal, midventral line with 2 lens like bodies connected by black ridge on wall of abdominal cavity, one close before vent, other in advance of ventrals; tropical fragile species less than foot long.----------Hymemocephalus.

h^{3}. Branchiostegals 7; gill membranes broadly united, little extended forward ventrally; lower gill rakers less than 15 on second arch; scales small; no ventral striae; vent remote from anal, preceded by naked areas; tropical or subtropical.

k^{1}. Mouth large, subterminal; upper jaw less than 1/3 head; gill membranes united below orbit.

l^{1}. Premaxillary teeth biserial; mandibular teeth uniserial; second dorsal spine smooth, rounded. ---------- ---------- Malacocephalus.

l^{2}. Premaxillary teeth in narrow villiform bands; second dorsal spine more or less serrate, front edge trenchant.- ----------Ventrifossa.

k^{2}. Mouth small or moderate; upper jaw 3 or more in head; gill membranes united below preopercle ridge (except rarely in aberrant Lionurus).

m^1. No row of enlarged scales along second dorsal base; bones of head firm, sensory canals moderate; scales all imbricate; second dorsal spine trenchant, serrate.

n^1. Snout moderately extended----------

----------Lionurus.

n^2. Snout greatly extended.----------

----------Mataeocephalus.

m^2. Enlarged modified scales only anteriorly basal on second dorsal and anal; head normal, bones firm; scales not imbricate, diamond shaped; second dorsal spine smooth, rounded; snout subconic, slightly projecting.----------Trachonurus.

m^3. Scales enlarged along dorsal base; head massive, skull with high crests; snout wide, high; scales with erect spinules; dorsal spine serrate. ---------- Cetonurus.

g^2. Ateleobrachinae. Pectoral strongly pedunculated; first dorsal and ventral fins extended.--------

----------Ateleobrachium.

Genus Steindachneria Goode and Bean

Steindachneria GOODE and BEAN, in AGASSIZ, Three Criuses of the Blake, vol. 2, p. 26, 1888. (Atypic. Type Steindachneria argentea GOODE and BEAN 1895 affixed.)

Steindachneria GOODE and BEAN, Oceanic Ichth., p. 419, 1895. (Type Steindachneria argentea GOODE and BEAN, monotypic.)

Steindachnerella EIGENMANN, Amer. Nat., vol. 31, p. 159, Feb. 1897. (Type Steindachneria argentea GOODE and BEAN, virtually. Steindachnerella EIGENMANN proposed to replace Steindachneria GOODE and BEAN.)

Body compressed, with long tapering tail. Trunk short, less than head. Head moderate, bones soft and cavernous. Snout short. Eye large, anterior. No mandibular barbel. Mouth large, terminal. Teeth biserial, outer row well delarged. Vomerine teeth present. Gill opening wide, membranes united anteriorly and free from isthmus. Gill rakers lanceolate. No pseudobranchiae. Branchiostegals 7. Scales deciduous, thin, cycloid, present on head. Both dorsals elevated anteriorly and first simple ray of first fin elongated. Anal with elevated anterior lobe, greater portion of fin very low. Paired fins below first dorsal.

An interesting genus, noted for its combination of characters, as soft cavernous skull, vomerine teeth, vent before first third of body and the elevated front anal lobe.

Steindachneria argentea Goode and Bean

Steindachneria argentea GOODE and BEAN, Oceanic Ichth., p. 419, pl. 101, fig. 351, 1895 (type locality: lat. 29° 14' 30" N., ling. 88° 09' 30" W., off Mississippi Delta, 68 fathoms).

--JORDAN and EVERMANN, Bull. U. S. Nat. Mus., no. 47, pt. 3, p. 2568 (1898) (compiled). --GILBERT and HUBBS, Proc. U. S. N. M., vol. 51, p. 142, 1916 (reference).

Depth 7 1/4; head 5 1/8, width 2 1/4. Snout 4 1/5 in head from snout tip; eye 3 1/2, greater than snout or interorbital; maxillary reaches 2/3 in eye, length 1 9/10 in head from snout tip; outer row of 28 slightly larger curved teeth above and inner band of close set more numerous short simple teeth, below similar teeth with outer row of 13 and few very short inconspicuous ones forming inner row; interorbital 5 1/3 in head, low, uneven. Gill rakers 5 + 14, lanceolate, slender, on first arch, 2 3/4 in eye; gill filaments 7/8 of gill rakers.

Scales 142 (115 on figure) in lateral line, of which 22 forward of vent; 6 above, 15 below, 23? predorsal. Scales very deciduous, most all fallen. Head scaly, though now most scales fallen, equal to those on body.

D. I, 8 - 123, first simple ray long filament 5 2/5 in total fish; a. I, 9, 113, first branched ray 1 4/5 in total head length; pectoral rays I, 14, equals head from snout tip; ventral rays I, 7, first ray filamentous or 1 4/5 in total head length.

Back brown, sides silvery gray. Under surface of head and belly leaden to dark neutral gray. Iris silvery white. Inside mouth and gill opening black. Fins brownish, paler than body color.

Gulf of Mexico.

U. S. N. M., no. 37350. Lat. 29° 14' 30" N., long. 88° 09' 30" W., Gulf of Mexico. In 68 fathoms. February 11, 1885. Albatross Collection (D. 2378). Length 233 mm. Type.

Genus Macruronus Günther

Macruronus GÜNTHER, Zoological Record, vol. 8, p. 103, 1871 (1873). (Type Coryphaenoides novae zelandiae HECTOR,

Body compressed, with moderately long tail. Trunk longer than head. Head moderate, compressed. Snout rather pointed. Eye large little before middle of head. Mouth wide, terminal. No mandibular barbel [described and figured by Hector and Hutton]. Upper teeth biserial, outer series and single lower series strong. Gill membranes slightly united in front. Gills 4, gill filaments well developed. First gill arch free, with long lanceolate gill rakers. Branchiostegals 7. Scales cycloid. Dorsals continuous, first little elevated, separated from second by deep notch. Anal slightly elevated in front. Paired fins below first dorsal.

Macruronus magellanicus Lönnberg

Macruronus magellanicus Lönnberg

--Gilbert and HUBBS, Proc. U. S. N. M., vol. 51, p. 142, 1916 (name).

Macruronus novae zelandiae (Hector)

Coryphaenoides novae zelandiae HECTOR, Trans. New Zealand Inst., vol. 3, p. 136, pl. 18, fig. 1, 1871 (type locality: off Ward Island in Port Nicholson). --HUTTON, Fishes of New Zealand, p. 49, pl. 8, fig. 79, 1872 (Cooks Straits; Wellington Harbour).

Macrurus novae zelandiae GÜNTHER, Rep. Voy. Challenger, vol. 22, p. 157, 1887 (New Zealand; Tasmania; Messier Channel).

Macruronus novae zelandiae GOODE and BEAN, Oceanic Ichth., p. 418, 1895 (copied). --WAITE, Rec. Canterbury Mus., vol. 1, no. 1, p. 18, April 25, 1907 (reference). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference). --MC CULLOCH, Austral. Mus. Mem., no. 5, pt. 1, p. 128, June 29, 1929 (compiled).

Coryphaenoides tasmaniae JOHNSTON, Proc. Roy. Soc. Tasmania, p. 143, 1882 (1883) (type locality: Kangaroo Bluff, Tasmania).

Genus Bathygadus Günther

Bathygadus GÜNTHER, Ann. Mag. Nat. Hist., ser. 5, vol. 12, p. 23, 1878. (Type Bathygadus cottoides GÜNTHER, monotypic.)

Melanobranchus REGAN, Ann. Mag. Nat. Hist., ser. 7, vol. 11, p. 459, 1903. (Type Bothygadus melanobranchus VAILLANT, monotypic.)

Gadomus REGAN, Ann. Mag. Nat. Hist., ser. 7, vol. 11, p. 459, 1903. (Type Bathygadus longifilis GOODE and BEAN, monotypic.)

Regania JORDAN, in Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 604, 1902 (Aug. 1904). (Type Regania nipponica JORDAN and GILBERT, monotypic.)

Body massive anteriorly, tapering in rather long, though small, compressed tail. Head large, short, robust, with elevated or hump-like nape. Snout short, wide, obtuse. Eye small, advanced. Mouth very large, terminal, lateral, mandible usually protruded in front, though jaws even. Teeth villiform in both jaws, in bands, usually extended entire length of jaws. No teeth on palate. Mandibular barbel present or absent. Bones of head soft, cavernous, without prominent ridges. Gills 3 1/2 or 4, small slit or none behind last arch. Gill rakers lanceolate, long on first branchial arch, which free; gill filaments short. Gill membranes free from isthmus. Branchiostegals 6 or 7. Scales deciduous, simple, thin, with fine circuli. Dorsal fins two, continuous or separate, front rays of second fin not shortened, gradually diminish in length on narrow posterior part of tail. Anal rays feeble, low throughout. Paired fins well developed.

Bathygadus antrodes (Jordan and Gilbert)

Melanobranchus antrodes JORDAN and GILBERT, Bull. U. S. Fish. Comm., vol. 22, p. 606, pl. 4, fig. 1, 1902 (Aug. 1904) (type locality: Japan). --JORDAN, TANAKA, SNYDER, Journ. College Sci. Tokyo, vol. 33, p. 401, (fig. 380 copied) 1913 (compiled).

Bathygadus antrodes GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. (142) 149, 1916 (off Shio Misaki; off Omi Saki; Sagami Bay; 440 to 712 fathoms); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 380, 1920 (diagnosis in key).

Depth 6 to 6 4/5; head 4 3/5 to 4 3/4, width 2 to 2 1/8. Snout 3 1/6 to 3 3/4 in head from snout tip; eye 5 2/3 to 6, 1 3/5 to 1 2/3 in snout, 1 3/4 to 2 1/8 in interorbital; maxillary reaches opposite hind eye edge, length 1 4/5 to 1 7/8 in head from snout tip; teeth uniform, short, 6 rows irregularly and transversely above, 3 below; interorbital 2 2/3 to 3 2/5, moderately high, unevenly convex. Gill rakers 6 + 20, lanceolate, slender on first arch, 1 1/2 in eye; gill filaments 1/2 gill rakers.

Scales 110 in medial or axial lateral series, of which 25 extend till opposite vent; 5 or 6 above, 12 below, 36? predorsal. Scales thin and very caducous, most all fallen. Scales similar on head to those on body. Scales simple, without striae; circuli moderately fine and complete.

D. II, 8 - 101 to 104, second simple ray extended and filamentous, sometimes long as head; A. 94?, lower than dorsal; no caudal; pectoral rays I, 13 or I, 14, first or second ray often filamentous, sometimes long as head; ventral I, 9, first ray elongate and long as head.

Brown, often with dusky shades. Iris gray. Inside gill opening, mouth and belly blackish. Fins usually darker brown than body.

Japan. The original figure of Jordan and Gilbert is comparatively crude, though based on the type is without fin filaments. It thus fails to prortray the characteristic appearance of the species. The Hawaiian material included below seems to be this species.

U. S. N. M., no. 50932. Manazuru Zaki, N. 70° W. 4.7 m., off Honshu Island, Japan. In 501 to 749 fathoms. May 5, 1900. Albatross Collection (3696). Length 265 mm. Rather poorly preserved. Type.

U. S. N. M., no. 51442. Sagami, Japan. Albatross Collection. (nos. 1700 and 1703.) Length 148 to 410 mm. 2 examples.

U. S. N. M., no. 77241.

Albatross Collection (3916). Diamond Head Light N. 40°, E. 9.7', north coast of Molokai Island. In 299 to 330 fathoms. May 6, 1902. Length 310 mm.

Albatross Collection (3917) Diamond Head Light, N. 50° 30' E. 10.3'. In 294 to 330 fathoms. May 6, 1902. Length 245 mm.

Albatross Collection (3918). Diamond Head Light, N. 63°, E. 8'. In 257 to 294 fathoms. May 6, 1902. Length 218? mm. to end of broken tail.

Albatross Collection (3919). Diamond Head Light, N. 84°, E. 7.9'. In 220 to 257 fathoms. May 6, 1902. Length 300 mm.

U. S. N. M., no. 77242. Lat. 25° 07' N., long. 170° 50' W., between Honolulu and Laysan. Depth not sounded. May 15, 1902. Albatross Collection (3930). Length 285 mm.

U. S. N. M., no. 77243. Laysan Island Light, N. 77° E. 8.6'. In 253 to 590 fathoms. May 19, 1902. Albatross Collection (3944). Length 350 mm.

U. S. N. M., no. 77244.

Length 191 to 202 mm. 2 examples.

U. S. N. M., no. 77245.

Albatross Collection.

Length 363 mm.

U. S. N. M., no. 77246.

Albatross Collection (4971½). In 649 fathoms. August 30, 1906.

Length 218 mm. to end of broken tail.

Bathygadus arcuatus Goode and Bean

Bathygadus arcuatus GOODE and BEAN, Bull. Mus. Comp. Zool., vol. 12, p. 158, 1886 (type locality: off Martinique, 334 fathoms); Oceanic Ichth., p. 421, 1895 (type; off Martinique, 420 fathoms; not Station 88). --JORDAN and EVERMANN, Bull. U. S. Nat. Mus., no. 47, pt. 3, p. 2564, 1898 (copied). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference).

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Gadomus arcuatus GILBERT and HUBBS, Proc. U. S. N. M., vol. 51, p. 142, 1917 (reference); Bull. U. S. N. M. no. 100, vol. 1, p. 392, 1920 (diagnosis in key).

Depth 5 1/3; head 5 to 5 1/4, width 1 3/4. Snout 3 in head; eye 5 4/5, 2 in snout, subequal with interorbital; maxillary reaches 7/8 to eye, length 1 4/5 in head; mandibular barbel 1 2/3; teeth extremely minute, close set, compact, form broad area above, lower similar though bands half as wide; interorbital 6 1/5 in head, low, level. Gill rakers 5 + 19, slender on first arch, 1/2 of eye; gill filaments 4/5 of gill rakers.

Scales 138 to 140 in lateral line, of which 18 to 140 in lateral line, of which 18 to 20 forward of vent; 8 above, 10 or 11 below, 38 predorsal. Scales very caducous, most all lost, largest on cheeks and opercles. Scales without striae; circuli fine, form angles basally at median horizontal axis.

D. II, 10 - 135, second simple ray at least 2 in head; A. 120, greatly lower than second dorsal; pseudocaudal small or rudimentary; pectoral rays I, 24, uppermost ending in short filament, fin 1 2/5 in head; ventral rays I, 8, first and second rays ending in long filaments of which second longer or 3 2/3 in total fish.

Brown, though head and belly not darker. Iris gray. Inside mouth whitish. Inside gill opening pale brown. Fins more or less dark to dusky brown.

Lesser Antilles. The example from Martinique, U. S. N. M. no. 47627, referred to this species by Goode and Bean, is Bathygadus longifilis.

U. S. N. M., no. 44690. Lat. 28° 38' 30" N., long. 87° 02' W., Gulf of Mexico. In 420 fathoms. March 13, 1885. Albatross Collection (D.2394). Length 580 mm.

Bathygadus bowersi (Gilbert)

Gadomus bowersi GILBERT, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 659, fig. 257, 1903 (1905) (type locality: vicinity of Bird Island, 313 to 800 fathoms; vicinity of Kauai, 437 to 876 fathoms). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 394, 1906 (reference).

Bathygadus bowersi GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 379, 1920 (diagnosis in key). --FOWLER, Mem. Bishop Mus., vol. 10, p. 85, 1928 (type).

Depth 6 1/3 to 6 2/5; head 5 1/4 to 5 1/2, width 1 1/2 to 1 7/8. Snout 3 to 3 1/10 in head from snout tip; eye 4 1/2 to 5 1/8, 1 2/5 to 1 3/5 in snout, 1 3/4 to 2 in interorbital; maxillary well inclined, reaches hind eye edge, length 1 3/5 to 1 7/8 in head from snout tip; mandible slightly protrudes; no barbel; teeth rather coarsely villiform above, in rather wide bands of 7 or 8 irregular wide set series, lower smaller and in 3 or 4 close set or contracted irregular series; interorbital 2 1/3 to 2 4/5, broad, low, unevenly convex. Gill rakers 6 or 7 + 22 to 24, lanceolate, little longer than gill filaments or 1/2 of eye, on first arch.

Scales (pockets) 120?, of which 18 forward of vent; 5 above, 15 below, 28 predorsal. Scales on head like those on body. Scales simple, without striae; circuli rather fine, complete.

D. II, 8 or II, 9, 111, fins continuous, rays all damaged; A. 104?, begins little before end of depressed pectoral; no caudal; pectoral rays I, 17 to I, 19, fin 1 5/6 in head; ventral rays I, 8, fin (damaged) origin opposite first dorsal origin.

Dusky or dark brown. Iris pale. Inside mouth and gill opening blackish. Paired fins and belly dusky, latter more or less swarthy.

Hawaiian Islands. According to Gilbert this species differs from Bathygadus cottoides, from the Kermadecs and New Zealand, in the presence of a short slit behind the last gill arch, number of dorsal and pectoral rays, gill rakers and proportions of head. In smaller preserved examples the head and belly are much darker and in contrast with the rest of the pale trunk and long tail.

U. S. N. M., no. 51658. Center of Bird Island, S. 32°, W. 12.8'. In 313 to 871 fathoms. August 5, 1902. Albatross Collection (D.4151). Length 465 mm. Type of Gadomus bowersi.

U. S. N. M., no. 51695.

Albatross Collection.

Length 185 to 383 mm. Paratypes of Gadomus bowersi.

Bathygadus colletti (Jordan and Gilbert)

Gadomus colletti JORDAN and GILBERT, Bull. U. S. Fish Comm., vol. 22, p. 603, fig., 1902 (Aug. 1904) (type locality: Suruga Bay, Japan, 207 to 250 fathoms). --JORDAN, TANAKA, SNYDER, Journ. College Sci. Tokyo, vol. 33, p. 409 (fig. 378 copied) 1913 (compiled). --GILBERT and HUBBS, Proc. U. S. N.M., vol. 51, p. (142) 154, 1917 (Suruga Gulf, 211 to 293 fathoms); Bull. U. S. N. M., no. 100, vol. 1, p. 392, 1920 (diagnosis in key).

Depth 7 1/4; head 5 2/5, width 1 7/8. Snout 3 3/4 in head from snout tip; eye 4, 1 1/5 in snout, little greater than interorbital; maxillary reaches 3/4 in eye, length 2 in head; long slender mental barbel 1 7/8; teeth very minute, villiform, numerous, close set, compact, upper bands more than twice width of lower; interorbital 5 1/3, low, nearly level. Gill rakers 5+ 21, lanceolate, slender, 2 1/5 in eye; gill filaments 7/8 of gill rakers.

Scales 150 in median lateral or axial series, of which 27 forward of vent; 10 above, 12 below, 36 predorsal. Scales caducous, mostly fallen, on head equally large as on body. Scales simple, cycloid, without striae; circuli fine, form angles at median horizontal axis basally.

D. II, 10 - 120, second simple ray long and filamentous, 4 1/8 in total length of fish, also posteriorly fin rays much higher than other dorsal rays; A. 112, greatly lower than second dorsal; small pseudocaudal, 1 4/5? in eye; pectoral rays I, 20, length 3 1/4 in total length of fish, uppermost ray extended in long filament; ventral rays I, 8, origin below pectoral origin or both before first dorsal origin, first ray ends in filament (broken) though fin at least 5 in total length of fish.

Back light brown, belly and under surfaces paler to whitish with silvery white sheen. Iris light gray. Inside mouth and gill opening blackish. First dorsal dusky to blackish brown. Second dorsal grayish, gray blue posteriorly and broad margin blackish. Anal whitish anteriorly, dusky posteriorly. Paired fins dusky.

Japan. Conspicuous by its long fin filaments, contrasted fins, pale body color and compact dentition. The lateral line slopes gently down below middle in the body depth above vent.

U. S. N. M., no. 50930. Oi Gawa, N. 49°, W. 2.8 m, off Honshu Island, Japan. In 207 to 250 fathoms. May 12, 1900. Albatross Collection (D.3721). Length 332 mm. Type of Gadomus colletti.

Bathygadus cottoides Günther

Bathygadus cottoides GÜNTHER, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 23, 1878 (type locality: deep sea between New Zealand and Kermadee Island, 520 to 700 fathoms); Rep. Voy. Challenger, vol. 22, p. 154, pl. 42, fig. A (types). --GOODE and BEAN, Oceanic Ichth., p. 420, 1895 (copied). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 394, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --WAITE, Rec. Canterbury Mus., vol. 1, no. 1, p. 18, April 25, 1907 (reference). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (name); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 380, 1920 (diagnosis in key).

Front.

Bathygadus denticulatus (Gilbert and Hubbs)

Gadomus ~~.~~ denticulatus GILBERT and HUBBS, Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 393, fig. 3, 1920 (type locality: east coast of Mindoro; west of Bohol; Leyte; between Cebu and Leyte; east coast of Luzon; north of Mindanao; east British North Borneo; between Gillolo and Makyan; 108 to 415 fathoms).

Bathygadus (Gadomus) denticulatus WEBER and BEAUFORT, Fishes Indo Austral. Archip., vol. 5, p. 21, 1929 (Weber's material).

Bathygadus longifilis (not GOODE and BEAN) WEBER, Sibogha Exped., vol. 57, p. 173, 1913 (Savu Sea; Flores Sea; 694 to 959 meters).

Depth 6 1/5; head 5 1/6, width 2 1/3. Snout 3 4/5 in head; eye 4 1/2, 1 1/6 in snout, greatly exceeds interorbital; maxillary reaches opposite hind eye edge, length 1 5/6 in head; mandibular barbel slender, length 1 2/5; teeth very minute, crowded, compact, form broader band in upper jaw; interorbital 6, low, level. Gill rakers 4 or 5 + 19 to 21, lanceolate on first arch, subequal with gill filaments, 1/2 of eye.

Scales 122 in medial lateral or axial series, of which 22 forward of vent; 7 to 9 above, 8 below, 37 predorsal. All scales very caducous or fallen, on head large as on body. Scales simple, cycloid, without striae; circuli moderately fine, complete.

D. II, 10 - 103, second simple ray ending in long slender filament which 4 in total fish; A. 93, fin much lower than dorsal; small slender pseudocaudal 3/4 of eye; pectoral rays I, 17 to I, 21, upper ray long filament 2 in total fish; ventral rays I, 7, first ray filament 4 in total fish.

Brown, more or less uniform, with slightly silvery to gray reflections. Iris light gray. Inside mouth and gill opening black. Fins all dark brown to dusky or blackish brown, filaments pale.

East Indies, Philippines.

U. S. N. M., no. 78207. Macabalan Point Light (Mindanao), S. 31° E., 7.7 miles (lat. 8° 37' 15" N., long. 124° 36' E.), vicinity of northern Mindanao. In 220 fathoms. August 5, 1909. Albatross Collection (D.5505). Length 307 mm. Type of Gadomus denticulatus.

Bathygadus dispar (Vaillant)

Hymenocephalus dispar VAILLANT, Exped. Sci. Travailleur et Talisman, Poiss., p. 221, pl. 24, fig. 1, 1888 (type locality: off Morocco, 1105 meters).

Bathygadus dispar GOODE and BEAN, Oceanic Ichth., p. 423, 1895 (copied). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference)

Gadomus dispar GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 392, 1920 (diagnosis in key).

Bathygadus entomelas Gilbert and Hubbs

Bathygadus entomelas GILBERT and HUBBS, Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 386, fig. 2, 1920 (type locality: Molucca Passage, 435 fathoms).

Bathygadus (Bathygadus) entomelas WEBER and BEAUFORT, Fishes Indo Austral. Archip., vol. 5, p. 18, 1929 (compiled).

Depth 6 1/2; head 4 1/8, width 2. Snout 3 1/2 in head; eye 5 1/8, 1 2/5 in snout, 1 2/5 in interorbital; maxillary reaches little beyond eye, length 1 3/4 in head; teeth small, uniform, in 6 irregular series transversely above and 4 below; interorbital 3 1/4, low, unevenly convex. Gill rakers 5 + 20 or 21, lanceolate on first arch, 1 3/5 in eye; gill filaments 2/5 of gill rakers.

Scales 80 in medial or axial lateral series, of which 25 forward of vent; 6 above, 13 below, 30? predorsal. Scales all very caducous, most all fallen and similar in size on head and body. Scales simple, thin, cycloid, without striae; circuli very fine, complete.

D. II, 8 - 73 (fin rays mostly damaged terminally), second simple ray 2 9/10 in head; A. 60 (rays damaged); small pseudocaudal at least half long as eye; pectoral rays I, 16 or I, 17, fin 1 3/5 im head; ventral rays I, 9, fin 2 in head and first ray filamentous.

Brown, nearly uniform. Iris gray. Inside mouth and gill opening blackish. Belly neutral blackish. Fins brownish.

East Indies. Known only from the type.

U. S. N. M., no. 78211. Mareh Island (S.) S. 78° E., 7 miles (lat. 0° 35' N., long. 127° 14' 40" E.), Molucca Passage. In 435 fathoms. November 28, 1909. Albatross Collection (D. 5619). Length 220 mm. Type.

Bathygadus favosus Goode and Bean

Bathygadus favosus GOODE and BEAN, Bull. Mus. Comp. Zool., vol. 12, p. 160, 1883 (type locality: off Martinique; lat. 15° N., long. 63° W., 172 fathoms); Oceanic Ichth., p. 420, pl. , fig. 352, 1895 (type; lat. 15° to 28° N., long. 63° to 87° W., 420 to 1501 fathoms). --JORDAN and EVERMANN, Bull. U. S. Nat. Mus., no. 47, pt. 3, p. 2565, 1898 (copied). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 380, 1920 (diagnosis in key).

Depth 6 1/2 to 7 3/5; head 5 1/4 to 5 7/8, width 2. Snout 3 1/4 to 3 2/3 in head from snout tip; eye 4 3/5 to 5 1/4, 1 1/3 to 1 3/5 in snout, 1 2/3 to 1 7/8 in interorbital; maxillary reaches 3/4 or to hind eye edge, length 1 3/4 to 1 7/8 in head from snout tip; teeth in close set villiform bands, of which 10 irregular rows transversely above and 5 below; interorbital 3 1/10 to 3 2/5 in head, low, unevenly convex. Gill rakers 6 + 21, lanceolate, 1/2 of eye; gill filaments 3/4 of gill rakers.

Scales 143? in axial lateral series, of which 20 forward of vent; 4 or 5 above, 14 below. Scales very caducous, most all fallen. On head scales apparently small on muzzle, otherwise on head large as on body. Scales without striae, thin, simple; circuli well marked, complete, moderately small.

D. II, 9, 120? to 124 (ends of all rays damaged); A. 102 to 105 (ends of all rays damaged), origin opposite first dorsal origin; no pseudocaudal; pectoral rays I, 14, length 1 4/5 to 2 1/5 in total head length; ventral rays I, 8, length 2 1/2 in total head length.

Dark brown, though some preserved examples apparently bleached whitish. Usually head and belly swarthy to blackish. Iris gray to whitish. Inside mouth and gill opening blackish, also branchiostegal flaps. Fins brownish, paired ones often dark.

West Indies, Gulf of Mexico. Although the fins are damaged in my materials none seem to show the ventrals longer than pectorals, as in Goode and Bean's figure. This last also shows very regular squamation on the body, though the scale pockets would indicate the scale rows as quite irregular.

U. S. N. M., no. 34909.

Length 372 mm. to end of broken tail.

U. S. N. M., no. 34910. Lat. 15° 24' N., long. 63° 31' W.

Albatross Collection (D.50). Length 445 mm.

U. S. N. M., no. 34911.

Length 530 mm.

U. S. N. M., no. 34918. Lat. 15° N., long. 63°

Length 328 mm.

U. S. N. M., no. 44620. Lat. 28° 47' 30" N., long. 87° 27'Gulf of Mexico.

In 724 fathoms. March 13, 1885. Albatross Collection (D. 2392).

Length 421 mm.

U. S. N. M., no. 47630.

Martinique.

Blake Collection (D.LXXXll). Length 160 mm. Very poorly preserved.

U. S. N. M., no. 74342. Lat. 28° 38' 30" N., long. 87° 2' W., Gulf of Mexico. In 420 fathoms. March 13, 1885. Albatross Collection (D.2394).

Length 208 to 210 mm. 2 examples.

Bathygadus filamentosus (Smith and Radcliffe)

Reganina filamentosa SMITH and RADCLIFFE, Proc. U. S. Nat. Mus., vol. 43, p. 107, pl. 22, fig. 2, 1913 (type locality: Sipodan Island, western Borneo, 415 fathoms). --WEBER, Siboga Exped., vol. 57, p. 672, 1913 (note).

Bathygadus filamentosus GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. (380) 384, 1920 (type; Molucca Passage; Gulf of Boni).

Bathygadus (Bathygadus) filamentosus WEBER and BEAUFORT, Fishes Indo Austral. Archip., vol. 5, p. 16, 1929 (Weber's material).

Bathygadus dubiosus WEBER, Siboga Exped., vol. 57, p. 173, pl. 5, fig. 5, 1913 (type locality: lat. 3° 37', 7' S., long. 131° 26' 4 E., Arafura Sea, 924 meters).

Bathygadus furvescens Alcock

Bathygadus furvescens ALCOCK, Journ. Asiatic Soc. Bengal, vol. 63, pt. 2, p. 128, 1894 (type locality: off Maldives, 719 fathoms); Illustrat. Zool. Investigator, pt. 3, pl. 16, fig. 1, 1895; Cat. Deep Sea Fishes Indian Mus., p. 121, 1899 (Arabian Sea; Gulf of Manar; Bengal Bay; Andaman Sea; 142 to 719 fathoms). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. (380) 389, 1920 (Eastern Luzon; between Leyte and Mindanao; off northern Mindanao; between Siquijor and Bohol; Gulf of Tomini; 565 to 976 fathoms).

Bathygadus (Bathygadus) furvescens WEBER and BEAUFORT, Fishes Indo Austral. Archip., vol. 5, p. 19, 1929 (Weber's materials).

Bathygadus melanobranchus (not VAILLANT) BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 272, 1906 (north west coast of Sumatra, 1024 meters; coast of east Africa, 1289 meters).

Bathygadus (Gadomus) melanobranchus WEBER, Siboga Exped., vol. 57, p. 112, 1913 (Macassar Strait; Ceram Sea; Flores Sea; 567 to 1301 meters).

Bathygadus garretti Gilbert and Hubbs

Bathygadus garretti GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. (142.) 151, pl. 8, fig. 1, 1916 (type locality: Suruga Gulf, 197 to 297 fathoms); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 380, 1920 (diagnosis in key).

Depth 6 2/3; head 4 4/5, width 1 7/8. Snout 3 1/2 in head; eye 6, 1 3/4 in snout, 1 1/2 in interorbital; maxillary reaches little beyond eye, length 1 7/8 in head; mandibular barbel very small, 7 in eye; teeth in villiform bands, upper broader or with 8 irregular transverse rows, 4 or 5 irregular rows below; interorbital 4 in head, low, broad, little convex. Gill rakers 4 + 19, lanceolate on first arch, 1 1/3 in eye; gill filaments 3/5 of gill rakers.

Scales 167 in median or axial lateral series, of which 30 forward of ventral; 7 above, 17 below, 38 predordal. Scales caducous, most all fallen, equally large on head as on body. Scales cycloid,without striae; circuli moderate, each forms angle at median or horizontal axis basally.

D. II, 9, 116, second simple ray 2 4/5 in head; A. 104; pseudocaudal minute, apparently less than barbel; pectoral rays I, 16, length 1 1/2 in head; ventral rays I, 9, fin 2 1/10 in head, inserted well before pectoral origin which also slightly before first dorsal origin.

Gray or drab brown, head, breast and belly livid though not darker. Inside mouth and gill openings blackish. Iris gray. Fins dull dusky, dorsal and anal paler anteriorly.

Japan. The scale pockets, from which most of the scales have fallen, would indicate that the scales are less regularly arranged tham shown in the original figure of the species.

U. S. N. M., no. 76863.

Albatross Collection (D.5059). Length 513 mm. Type.

Bathygadus introniger (Gilbert and Hubbs)

Gadomus introniger GILBERT and HUBBS, Bull. U. S. Nat. Mus., no. 100, vol. 1, p. (393) 401, fig. 5, 1920 (type locality: off southern Luzon; Lagonoy Gulf; east coast British North Borneo; Buton Strait; Gulf of Boni; 300 to 700 fathoms).

Bathygadus (Gadomus) introniger WEBER and BEAUFORT, Fishes Indo Austral; Archip., vol. 5, p. 21, 1929 (compiled).

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Gadomus multifilis (part) RADCLIFFE, Proc. U. S. Nat. Mus., vol. 43, p. 106, text fig. 1, 1912. --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference).

Depth 6 4/5; head 4 3/5, width 2 1/4. Snout to eye 3 2/3 in head from snout tip; eye 5 7/8, 1 4/5 in snout, 1 2/5 in interorbital; orbit 4 7/8 in head from snout tip, 1 1/5 in snout, 1 in interorbital; maxillary reaches well behind orbit, length from snout tip 1 3/4 in head; mandibular barbel 5 1/2; teeth minute, villiform, in bands in jaws of 10 to 12 irregular transverse series; interorbital 4 1/2 in head from snout tip, low nearly level or little cavernous. Gill rakers 6 + 23 or 24 on first arch, lanceolate, 1/2 of eye; gill filaments 2/3 of gill rakers.

Scales (pockets) 100 in lateral line; 7 above, 14 below, 30 predorsal. Scales cycloid; circuli very fine, more or less complete.

D. II, 8 - 87, second simple ray elongate, filamentous, length 2 2/5 in combined head and body, fin height of second dorsal 2 1/4? in total head length; A. 72, much lower than second dorsal; pseudocaudal 4 in head; pectoral rays I, 17, fin with uppermost ray long filament 2 1/3 in combined head and body to pseudocaudal; ventral I, 7, first simple ray ending in filament 4 1/8.

Brown. Inside mouth gray. Inside gill opening blackish. brown, also branchiostegal region. Iris gray. Fins dusky.

East Indies, Philippines.

U. S. N. M., no. 78209. North Island (S.), N. 87° E., 10.2 miles (lat. 5° 35' S., long. 122° 20' E., Buton Strait.) In 559 fathoms. December 16, 1909. Length 322 mm. Type of Gadomus intronigger.

Bathygadus ~~lon~~gifilis Goode and Bean

Bathygadus longifilis GOODE and BEAN, Proc. U. S. Nat. Mus., vol. 8, p. 599, 1885 (1886) (type locality: lat. 28° 47' 30" N., long. 87° 27', Gulf of Mexico, 724 fathoms). --GUNTHER, Rep. Voy. Challenger, vol. 22, p. 157, 1887 (compiled). --GOODE and BEAN, Oceanic Ichth., p. 422, 1895 (types; Gulf of Mexico; 525 to 739 fathoms). --COLLETT, Rés. Comp. Sci. Monaco, vol. 10, p. 90, 1896 (between Pico and Saõ Jorge, Azores, 1287 meters). --JORDAN and EVERMANN, Bull. U. S. Nat. Mus., no. 47, vol. 3, p. 2566, 1898 (copied). --GARMAN, Mem. Mus.,Comp. Zool., vol. 24, p. 394, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --MURRAY and HJORT, Depths of the Ocean, p. 399, 1912 (off Morocco, 1215 to 1615 meters; Canaries, 1365 , meters). --ROULE, Rés. Comp. Sci. Monaco, vol. 52, p. 88, 1919 (south of Pico, Azores; south east of Flores; south of Portugal; 50 miles off Mogador; 1 1/2 miles off Mogador; 1 1/2 miles off Hierro, Canaries; north of Saõ Jorge 3 1/2 miles; 1095 to 1786 meters).

Hymenocephalus longifilis VAILLANT, Exped. Sci. Travailleur et Talisman, Poiss., p. 218, pl. 23, fig. 1a - c, 1888 (coasts of Morocco; coasts of Soudan; 1084 to 1635 meters).

Gadomus longifilis GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 393, 1920 (diagnosis in key).

Bathygadus arcuatus (part) GOODE and BEAN, Oceanic Ichth. p. 421, 1895 (specimen from off Martinique, 476 (fathoms).

Depth 7 1/2 to 7 7/8; head 5 2/3 to 5 3/4, width 2 1/8 to 2 1/3. Snout 3 1/3 to 3 2/3 in head from snout tip; eye 4 1/2 to 5, 1 1/5 to 1 2/5 in snout, 1 to 1 1/6 in interorbital; maxillary reaches opposite hind eye edge, length 1 2/3 to 1 3/4 in head from snout tip; mandibular barbel 2 1/2 to 2 2/3, slender; teeth minutely villiform, in rather narrow bands in jaws with lower band narrower; interorbital 3 1/4 to 4, low, slightly convex. Gill rakers 6 or 7 + 25 to 28, on first arch, lanceolate, slender, 1 1/3 in eye; gill filaments 1/5 of gill rakers.

Scales 123 to 142 in median or axial lateral series, of which 21 forward of vent; 6 above, 12? below, 25 predorsal. Scales apparently equally large on head as on body, all very caducous or fallen. Scales thin, cycloid, without striae; circuli moderate, converge to angles on median basis axis.

D. II, 8 or II, 9 - 132, second simple ray elongate and filamentous, 3 1/5 in total length of fish; A. 110, rays all much shorter than second dorsal; pseudocaudal (broken) long as eye; pectoral rays I, 12, uppermost long and filamentous, at least 2 4/5 in total length of fish; ventral rays I, 8, first long and filamentous or 3 in total length of fish.

Pale brown, nearly uniform. Iris grayish. Inside mouth and gill opening blackish. Belly grayish.

Atlantic Ocean, Gulf of Mexico. My material quite agrees with Vaillant's figure, though it does not show any scales on the head. Vaillant gives scales 135 in lateral series, 7 above, 18 below.

U. S. N. M., no. 37338. Lat. 28° N., long. 87° W.

Albatross Collection . Type 233 mm, paratype 225 mm.

U. S. N. M., no. 42114.

Paris Museum (46 + 480). Length 262 mm. As Hymenocephalus longifilis.

U. S. N. M., no. 47411. Lat. 28° 47' 30" N., long. 87° 27' W., Gulf of Mexico. In 724 fathoms. March 13, 1885. Albatross Collection (D.2392). Length 243 mm.

U. S. N. M., no. 47627. Martinique.

In 476 fathoms.

Blake Collection (D. LXXXVIII). Length 217 mm. One Example. As Bathygadus arcuatus. Gill rakers 6 + 27.

U. S. N. M., no. 53046. Lat. 28° 51'N., long. 88° 18' W., Gulf of Mexico. In 730 fathoms. March 3, 1885. Albatross Collection (D.2385). Length 273 mm.

U. S. N. M., no. 74340. Lat. 29° 11' 30" N., long. 85° 29' W., Gulf of Mexico. In 26 fathoms. February 7, 1885. Albatross Collection (D.2374). Length 112 to 125 mm. As Bathygadus arcuatus. Gill rakers 6 or 7 + 25 to 28. 2 examples.

U. S. N. M. no. 74343. Lat. 28° 43' N., long. 87° 14' 30" W., Gulf of Mexico. In 525 fathoms. March 13, 1885. Albatross Collection (D.2393). Length 95 mm. Filaments evidently broken off fins.

Bathygadus melanobranchus Vaillant

Bathygadus melanobranchus VAILLANT, Exped. Sci. Travailleur et Talisman, Poiss., p. 206, pl. 18, fig. 1, 1888 (type locality: off Morocco; Canaries; Soudan; 834 to 1590 meters). --GOODE and BEAN, Oceanic Ichth., p. 424, 1895 (copied). --COLLETT, Rés. Camp. Sci. Monaco, vol. 10, p. 88, 1896 (lat. 39° 26' 30" N., long. 33° 23' E., 1557 meters). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --MURRAY and HJORT, Depths of the Ocean, p. 399, 1912 (off Morocco, 1215 meters; off Canaries, 1365 meters). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference). --ROULE, Rés. Camp. Sci. Monaco, vol. 52, p. 89, 1919 (3 miles east of Lanzarote, Madeira; near Maio, Cape Verde Islands; 6 miles south of Saõ Miguel; north of Saõ Jorge 3 1/2 miles; between Pico and and Saõ Jorge ; 1095 to 1300 meters). --GILBERT and HUBBS, Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 380, 1920 (diagnosis in key).

Depth 6 2/3; head 5, width 2 1/4. Snout 3 3/4 in head from snout tip; eye 3 1/2, subequal with snout and interorbital; maxillary reaches opposite hind eye edge, length 1 4/5. in head from snout tip; no barbel; teeth finely villiform, even, in 6 or 7 rows transversely above and 4 or 5 below; interorbital 3 1/10, low, unevenly though rather deeply depressed. Gill rakers 6 + 23 on forst arch, lanceolate, slender, 1 2/5 in eye; gill filaments 2/7 of gill rakers.

Scales (pockets) 110 in medial lateral or axial series, of which 18 forward of vent; 7 above, 12 below, 26 predorsal. Scales most all fallen, apparently little larger on head than on body. Scales simple, cycloid, without striae; circuli fine, form angles on median or horizontal axis basally.

D. II, 8 - 111, second simple ray 3 in total head length; A. 88, fin much lower than dorsal; no pseudocaudal; pectoral rays I, 15? (damaged); ventral rays I, 7, (damaged), inserted well before first dorsal.

Warm brown generally, head little paler, with silvered reflections and gray on opercles. Iris gray. Inside mouth and gill opening blackish brown. Fins more or less dusky.

Eastern Atlantic. Though my specimens in poor preservation. Vaillant shows pectoral 1 3/5 in head and ventral 2 2/3. He also gives scales 140?, 7 above, 17 below, D. 9 - 102 and A. 97, length 440 mm.

U. S. N. M., no. 42083.

Travailleur et Talisman Collection. Paris Museum (86 + 110). Length 210 mm.

U. S. N. M., no. 42111.

Travailleur et Talisman Collection. Paris Museum (86 + 113). Length 118 mm. to end of broken tail.

Bathygadus macrops Goode and Bean

Bathygadus macrops GOODE and BEAN, Proc. U. S. Nat. Mus., vol. 8, p. 598, 1885 (type locality: lat. 28° 34' N., long. 86° 84' W., 335 fathoms). --GUNTHER, Rep. Voy. Challenger, vol. 22, p. 156, 1887 (copied). --GOODE and BEAN, Oceanic Ichth., p. 423, 1895 (type; Gulf of Mexico, 321 to 347 fathoms). --JORDAN and EVERMANN, Bull. U. S. Nat. Mus., no. 47, pt. 3, p. 2566, 1898 (copied). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 394, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 380, 1920 (diagnosis in key).

Depth 7 to 7 1/8; head 5 to 5 1/3, width 1 7/8 to 2. Snout 3 2/3 to 3 3/4 in head; eye 3 1/3 to 3 3/5, greater than snout or interorbital; maxillary reaches 4/5 in or to hind eye edge, length 1 4/5 to 1 7/8 in head; mandibular barbel absent or long as 5 in eye; teeth minute, in villiform bands in jaws of 7 more or less defined close set rows above and 5 or 6 below; interorbital 3 1/2 to 5 in head, nearly level, though with irregular depressions. Gill rakers 6 or 7 + 19 or 20, lanceolate, 2 2/3 in eye; gill filaments 1/2 of gill rakers.

Scales 135 in axial or medial lateral series, of which 27 forward of vent; 6 above, 12 below, 40 predorsal. Scales very caducous, most all fallen, apparently equally as large on head as on body. Scales cycloid, without striae; circuli moderately fine, form angles at horizontal or medial axial basally.

D. II, 8 - 125, second simple ray 2 7/8 in head, though ends of most rays broken; A. 112, rays all much lower or shorter than dorsal rays; pseudocaudal small, short, 1/7 of eye; pectoral rays I, 16, fin 1 2/3 to 2 in head; ventral rays I, 7, fin 1 1/2 to 1 3/4 in head, origin before first dorsal origin.

Very light brown, with slightly silvered tints, belly and under surfaces of head nearly whitish. Iris silvery white. Inside mouth and gill opening blackish though outer branchiostegal region whitish. ~~Fins all largely pale to whitish~~. Fins all largely pale to whitish, dorsal and anal posteriorly and caudal dusky to dark brown.

Gulf of Mexico. Known by its light or pale coloration and the head much larger than the trunk.

U. S. N. M., no. 37339. Lat. 28° 34' N., long. 86° 48' W., Gulf of Mexico. In 335 fathoms. March 13, 1885. Albatross Collection (D.2396). Length 305 mm. Type.

U. S. N. M., no. 53047. Lat. 28° 36' 15" N., long. 86° 50' W., Gulf of Mexico. In 347 fathoms. March 13, 1885. Albatross Collection (D.2395). Length 197 to 238 mm. 2 examples.

U. S. N. M., 2 examples. Lat. 29° 3' 15" N., long. 88° 16' W., Gulf of Mexico. In 324 fathoms. February 11, 1885. Albatross Collection (D.2376). Length 123 to 327 mm.

Bathygadus magnifilis (Gilbert and Hubbs)

Gadomus magnifilis GILBERT and HUBBS, Bull. U. S. Nat. Mus., no. 100, vol. 1, p. (393) 398, fig. 4, 1920 (type locality: northern Mindanao; Sogod Bay, southern Leyte; near Cagayan Island; 508 to 554 fathoms.

Depth 6 3/4 to 7; head 5 1/4 to 5 1/3, width 2 1/8 to 2 1/5. Snout to eye 3 3/4 in head from snout tip; eye 5 to 4 1/4, 1 1/5 to 1 1/2 in snout, 1 1/8 to 1 1/5 times interorbital; orbit 4 1/2 in head from snout tip, 1 to 1 1/6 in snout, interorbital 1 1/4 to 1 1/3 in orbit; maxillary reaches opposite hind orbital edge or slightly beyond, length from front end 1 4/5 in head from snout tip; mandibular barbel 1 2/5 to 1 2/3; teeth minute, in rather broad villiform bands in jaws, about 12 irregular rows transversely above and 9 below; interorbital 6 to 6 1/5, low, nearly level, cavernous. Gill rakers 5 + 24, lanceolate, 1 4/5 in orbit, twice gill filaments.

Scales (pockets) 135; 7 above, 12 below, 32 predorsal of which 21 forward until opposite hind eye edge. Scales with complete fine circuli.

D. II, 10 - 140?, second simple ray slender, entire, filamentous, 2 4/5 to 3 1/4 in combined head and body; height of second dorsal 2 1/5 in head; interdorsal space 1/3 of eye; A. 128?, much lower than second dorsal; pectoral rays I, 15, first simple ray long and filamentous, 3 1/3 to 3 2/5 in total length of fish.

Light brown. Muzzle pale. Opercles light gray, edge of gill opening dusky. Iris gray. Inside mouth and gill opening neutral black. Fins brown, spinous dorsal darker.

Philippines.

U. S. N. M., no. 78208. Camp Overton Light, S. 26° E., 24.6 miles (lat. 8° 34' 48" N., long. 124° 1' 24" E.), off northern Mindanao. Depth not given. August 8, 1909. Albatross Collection (D.5515). Length 335 mm. Type of Gadomus magnifilis.

U. S. N. M., no. 78234. Paratypes of Gadomus magnifilis. Albatross Collection (D.5201). Limasaua Island (E.) S. 1° E., 14. 80 miles (lat. 10° 10' N., long. 125° 4' 15" E.), Sogod Bay, southern Leyte. In 554 fathoms. April 10, 1908. Length 235 mm.

Albatross Collection (D.5423). Cagayan Island (S.), S. 11° E., 4.8 miles (lat. 9° 38' 30" N., long. 121° 11' E.), Jolo Sea. In 508 fathoms. March 31, 1909. Length 223 mm.

Bathygadus melanopterus (Gilbert)

Gadomus melanopterus GILBERT, Bull. U. S. Fish. Comm., vol. 23, pt. 2, p. 658, fig. 256, 1903 (1905) (type locality: near Kauai Island, 444 to 478 fathoms). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 394, 1906 (reference) --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 393, 1920 (diagnosis in key). --FOWLER, Mem. Bishop Mus., vol. 10, p. 86, 1928 (compiled).

Depth 6 1/5; head 5 1/8, width 2 1/4. Snout 3 2/3 in head from snout tip; eye 4 2/5, 1 1/4 in snout, 1 1/10 in interorbital; maxillary reaches slightly beyond eye, length 1 4/5 in head from snout tip; long slender mandibular barbel 2 1/8; teeth minute, villiform, compact, in bands in jaws with upper wider; interorbital 4 1/2, low, nearly level. Gill rakers 5 or 6 + 27, slender, lanceolate, 1 1/3 in eye; gill filaments 2/5 of gill rakers.

Scales 120 in median lateral or axial series, of which 22 forward of vent; 6 above, 10? below, 28? predorsal. Scales very caducous, most all fallen, equally large on head as on body. Scales without striae; circuli moderate, form angles on horizontal axis basally.

D. II, 9 - 110, second simple ray ending in long filament or about 2 7/8 of total fish; A. 100, rays all greatly lower than dorsal rays; pseudocaudal narrow or slender, at least 3/4 of eye; pectoral rays I, 16 to I, 18, uppermost ending in long filament 2 3/4 in total length of fish; ventral I, 8, first ray also ends in filament so fin 3 1/3 in total fish, fin origin little before that of pectoral or first dorsal.

Pale brown generally. Iris grayish. Under surfaces of head and belly gray blue, opercular region and border of gill opening blackish. Inside mouth and gill opening black. Fins all dusky.

Hawaiian Islands. The trunk is noticeably shorter than the head, and both barbel and fin filaments are greatly developed.

U. S. N. M., no. 51606. Ukula Point, S. 82° 30' E. 10.2', vicinity of Kauai Island. In 444 to 478 fathoms. June 24, 1902. Albatross Collection (D.4028). Length 273 mm. Type of Gadomus melanopterus.

Bathygadus micronema (Gilbert)

Melanobranchus micronema GILBERT, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 661, fig. 258, 1903 (1905) (type locality: Pailolo Channel between Maui and Molokai, 753 to 787 fathoms). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 394, 1906 (reference).

Bathygadus micronema GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 380, 1920 (diagnosis in key). --FOWLER, Mem. Bishop Mus,, vol. 10, p. 85, 1928 (compiled).

Depth 6 4/5; head 5 1/5, width 2 . Snout 3 1/4 in head from snout tip; eye 5, 1 1/4 in snout, 1 1/10 in interorbital; maxillary extends little beyond eye, length 1 2/3 in total head length; minute mandibular barbel scarcely evident at lower symphyseal face; teeth very finely and minutely villiform, upper band slightly broader than lower; interorbital 4 1/4, low, nearly level, though surface little uneven. Gill rakers 6 or 7 + 28, lanceolate on first arch, 1 1/3 in eye; gill filaments 2/5 gill rakers.

Scales 140 in medial or axial lateral series, of which 25 forward of vent; 6? above, 18 below, 30? predorsal. Scales small, thin, cycloid, very caducous, most all fallen. Scales on head apparently subequal with those on body. Scales simple, without striae; circuli moderate, complete, forming angles at horizontal axis basally.

D. II, 10 - 103, second simple ray filamentous, little longer than head or 4 1/3? in total fish; A. 84, rays all much lower than dorsal; distinct pseudocaudal (broken), evidently 1/2 of eye; pectoral rays I, 17, fin 3 3/4? in total fish, upper ray ending in long filament; ventral rays I, 7, first ray ending in long filament so fin apparently long as pectoral.

Brownish. Opercular region of head, breast and belly dusky to swarthy. Iris gray. Inside mouth and gill opening blackish. Fins brownish.

Hawaiian Islands. Hudson's drawing of this species, as published by Gilbert, shows the upper jaw slightly longer, though exactly the reverse is true of the type, its lower jaw slightly protruding. Further Hudson does not indicate the minute symphyseal barbel, which however would hardly show in his profile drawing. He does show what appears to be a barbel nearly half long as eye diameter and about opposite the front edge of the eye. This appears to me to be a torn strand of the anterior branchiostegal membrane, though in no sense a barbel. Gilbert does not appear to have noticed it as there is no reference to it in his text. In the species the head is nearly twice length of the trunk as measured to the vent.

U. S. N. M., no. 51643. Mokuhooniki Islet, S. 51°, W. 20.7', Pailolo Channel, between Maui and Molokai Islands. In 753 to 787 fathoms. July 22, 1902. Albatross Collection (D.4094). Length 235 mm. Type of Melanobranchus micronema.

Bathygadus multifilis Günther

Bathygadus multifilis GÜNTHER, Rep. Voy. Challenger, vol. 22, p. 155, pl. 42, fig. B, 1887 (type locality: south of Philippines, 500 fathoms). --GOODE and BEAN, Oceanic Ichth., p. 420, 1895 (copied). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 394, 1899 (reference). --JORDAN and RICHARDSON, Philippine Journ. Sci., vol. , p. 58, 1910 (compiled).

Bathygadus (Gadomus) multifilis WEBER and BEAUFORT, Fishes Indo Austral. Archip., vol. 5, p. 23, 1928 (type).

Gadomus multifilis GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1917 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. (393) 406, 1920 (Lagonoy Gulf; Darvel Bay, Borneo; Gulf of Tomini, Celebes; 480 to 890 fathoms).

Bathygadus longifilis (not GOODE and BEAN) ALCOCK, Ann. Mag. Nat. Hist., ser. 6, vol. 6, p. 302, 1890 (Arabian Sea, 456 to 740 fathoms); ser. 6, vol. 8, p. 123, 1891 (off west coast Andamans, 683 fathoms); Cat. Deep Sea Fishes Indian Mus., p. 120, 1899 (Bengal Bay; west coast of Andamans; Arabian Sea; 459 to 740 fathoms). --CHUN, Aus den Tief. Weltmeeres, p. 504, fig., 1900 (East Africa). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, p. 270, pl. 12, fig. 7, 1906 (west coast of Sumatra; east coast of Africa; 903 to 1362 meters).

Bathygadus nipponicus (Jordan and Gilbert)

Regania nipponica JORDAN and GILBERT, Bull. U. S. Fish Comm., vol. 22, p. p. 605 , fig., 1902 (August 1904) (type locality: Suruga Bay, 207 to 250 fathoms). --JORDAN, TANAKA, SNYDER, Journ. College Sci., Tokyo, vol. 33, p. 410, 1913 (compiled).

Bathygadus nipponicus GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1917 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. 380, 1920 (diagnosis in key).

Depth 7 3/5; head 5, width 2 1/10. Snout 3 3/4 in head from snout tip; eye 5 1/5, 1 1/2 in snout, 1 1/2 in interorbital; maxillary reaches little beyond eye or opposite hind edge of orbit, length 1 9/10 in head from snout tip; no barbel; teeth villiform, even, in broad bands in jaws, upper band wider or of 8 to 10 irregular rows transversely and lower of 7 or 8 rows; interorbital 3 1/2 in head, low, unevenly convex. Gill rakers 5 + 18 on first arch, lanceolate, 1 1/4 in eye; gill filaments 3/5 of gill rakers.

Scales 148 in lateral line, of which 27 forward of vent; 6 above, 16 below, 27? predorsal. Scales moderate, partially adherent, though many fallen. Scales cycloid, simple, without striae; circuli fine, numerous, each forms angle medially at horizontal axis basally.

D. II, 10 - 97 (ends of rays damaged); A. 90?; pseudocaudal small, of few rays, at least 2 1/2 in eye; pectoral rays I, 16, fin 1 3/4 in total head length; ventral rays I, 8, fin 2 2/5.

Drab or grayish, head, breast and belly not darker. Inside mouth and gill opening blackish. Iris gray white. Fins brownish, dorsal and anal posteriorly and caudal dusky, also paired fins.

Japan. Known only from the type. The lateral line falls rather low above the anal fin and though ends of first dorsal and paired fins broken off it is possible that they may have ended in filaments. The ends of all these fins are less definite than the original figure seems to show.

U. N. S. P., no. 50931. Oi Gawa, N. 49°, W. 2.8 miles, off Homshu Island, Japan. In 207 to 250 fathoms. May 12, 1900. Albatross Collection (D.3721). Length 590 mm. Type of Regania nipponica.

Bathygadus spongiceps Gilbert and Hubbs

Bathygadus spongiceps GILBERT and HUBBS, Bull. U. S. Nat. Mus., no. 100, vol. 1, p. (380) 381, fig. 1, 1920 (type locality: off north east Borneo; off southern Luzon; off south east coast of Luzon; 480 to 890 fathoms).

Bathygadus (Bathygadus) spongiceps WEBER and BEAUFORT, Fishes Indo Austral. Archip., vol. 5, p. 17, 1929 (compiled).

Depth 7 to 7 3/4; head 5 1/8 to 5 3/4, width 1 7/8 to 2. Snout 3 to 3 1/5 in head from snout tip; eye 6 to 7, 1 3/4 to 2 1/4 in snout, 2 to 2 1/5 in interorbital; maxillary reaches opposite hind eye edge, length 1 4/5 to 1 5/6 in head from snout tip; teeth subequal, in villiform bands in jaws of 7 or 8 irregular rows transversely above and 4 or 5 below; interorbital 3 to 3 1/6, rather low, unevenly convex. Gill rakers 5 or 6 + 19 to 22 on first arch, lanceolate, 1 2/3 in eye; gill filaments 3/5 of gill rakers.

Scales 122 in medial or axial lateral series; 6 above, 12? below, 15? predorsal forward to occiput or opposite hind eye edge. Scales very caducous, most all fallen, present on head where apparently similar to rest of body. Scales simple, thin, without striae; circuli fine, complete.

D. II, 9 or II, 8 - 106, first dorsal height 2 3/4 in total head length; A. 95 (damaged), anterior rays apparently short; pseudocaudal indistinct; pectoral rays II, 14 to II, 18, fin 2 1/8 in total head; ventral rays II, 8, rarely II, 7, fin 2 2/5 in total head.

Brown, head and belly blackish. Iris dark. Inside mouth and gill opening blackish. Vertical fins brownish, paired ones darker.

East Indies, Philippines. In this species the ventrals inserted a little in advance of first dorsal origin.

U. S. N. M., no. 78210. Si Amil Island (N.), S. 82° W., 6.2 miles (lat. 4° 19' 54" N., long. 118° 58' 38" E.), vicinity of Darvel Bay, Borneo. In 890 fathoms. September 26, 1909. Albatross Collection (D.5582). Length 390 mm. Type.

U. S. N. M., no. 78235. Six paratypes. Albatross Collection (D.5274). Malavatuan Island (N.), S. 73° 39' E., 17.50 miles (lat. 13° 57' 30" N., long. 120° 3' 25" E.), China Sea near southern Luzon. In 525 fathoms. July 16, 1908. Length 213 to 230 mm, 2 examples.

Albatross Collection (D.5460). Sialat Point Light, N. 24° E., 8.2 miles (lat. 13° 32' 30" N., long.123° 58' 06" E.), east coast of Luzon. In 565 fathoms. June 10, 1909. Length 298 to 330? mm, 2 examples.

Albatross Collection (D.5467). Atulayan Island (S.), S.79° W., 2.5 miles (lat. 13° 25' 27" N., long. 123° 37' 18" E.), east coast of Luzon. In 480 fathoms. June 18, 1909. Length 275 mm.

Albatross Collection (D.5648). North Island (S.), N. 87° E., 10.2 miles (lat. 5° 35' S., long. 122° 20' E.), Buton Strait. In 559 fathoms. December 16, 1909. Length 300 mm.

Bathygadus sulcatus (Smith and Radcliffe)

Regania sulcata SMITH and RADCLIFFE, Proc. U. S. Nat. Mus., vol. 43, p. 108, text fig. 1, pl. 22, fig. 3, 1912 (type locality: Cagayan Island, Jolo Sea, 508 fathoms).

Bathygadus sulcatus GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference); Bull. U. S. Nat. Mus., no. 100, vol. 1, p. (380) 390, 1920 (type; between Marinduque and Luzon; near Cagayan Island; off northern Mindanao; between Siquijor and Bohol; 340 to 530 fathoms).

Depth 7; head 4 2/3, width 2 1/3. Snout 3 3/5 in head from snout tip; eye 4 1/2, 1 2/5 in snout, 1 in interorbital; maxillary reaches opposite hind eye edge, length 1 4/5 in head from snout tip; no barbel; teeth in villiform bands, uniform, 10 to 12 transversely irregular series above, lower bands narrower and transversely 7 or 8 irregular series; interorbital 5, low, unevenly convex. Gill rakers 5 + 16 on first arch, lanceolate, 1 3/4 in eye; gill filaments 1/2 of gill rakers.

Scales 154 in lateral line, of which 24 or 26 forward of vent, lateral line falling little below middle of body depth above anal; 6 above, 16 below, 38 predorsal. Scales very caducous, mostly fallen, thin, nearly or quite as large on head as on body. Scales entire, cycloid, without striae; circuli very fine, form angles at medial or horizontal axis basally.

D. II, 10 - 105, second simple ray (broken) 2 1/5? in total head length; A. 88, much lower than dorsal anteriorly; pseudocaudal rather long, slender, 1/2 of eye; pectoral rays I, 15, length 1 1/2 in head; ventral I, 8, fin 1 7/8 in head, origin before pectoral origin and forms inclined line to first dorsal origin, which most posterior of three.

Chocolate brown. Belly livid dark gray brown. Sides of head dark. Iris dark gray. Inside mouth and gill openings black, also branchiostegals. Mandible dark. Fins more or less dark to dusky.

Philippines. In this species the head is a little longer than the trunk and the pectoral reaches a little beyond vent. Its coloration in noticeably dark.

U. S. N. M., no. 72925. Cagayan Island (S.), S. 11° E., 4.8 miles (lat. 9° 38' 30" N., long. 121° 11' E.), Jolo Sea. In 508 fathoms. March 31, 1909. Albatross Collection (D.5423). Length 432 mm. Type of Regania sulcata.

Genus Trachyrinchus Giorna

Trachyrinchus GIORNA, Mem. Accad. Imp. Turin, vol. 16, p. 178, 1803. (Atypic. Type Lepidoleprus trachyrinchus RISSO, affixed Tautotypic.)

Trachyrhynchus GUNTHER, Rep. Voy. Challenger, vol. 22, p. 152, 1887. (Type Lepidoleprus trachyrinchus RISSE, tautotypic.)

Oxycephus RAFINESQUE, Indice Itt. Sicil., p. 13, 1810. (Type Oxycephus scabrus RAFINESQUE, monotypic.)

Lepidoleprus RISSO, Ichth. Nice, p. 197, 1810. (Type Lepidoleprus trachyrinchus RISSO, monotypic!)

Lepidosoma RISSO, in Swainson, Nat. Hist. Animals, vol. 2, p. 261, 1838. (Type Lepidoleprus trachyrinchus RISSO, monotypic.)

Body compressed, with short trunk and rather short tapering tail. Head large, conic, about wide as deep. Snout greatly extended forward in long sharp point and sharp lateral edge extends straight along suborbital. Eye advanced, usually with large orbit. Mouth inferior, small. Teeth in jaws in villiform bands, none on palate. Barbel present. Opercle small. Gill membranes scarcely united. Gills 4. Scales moderate, spinescent. Second dorsal well developed. Anal low throughout. Paired fins small, ventral often with long slender first ray.

Species few, noted especially for the row of large spine-like scales extending along each side of base of both dorsal and anal fins. The large orbit and prominent lateral ridges along the sides and front of the head, render a physiognomy extreme in appearance among the macrurids.

Trachyrinchus scabrus (Rafinesque)

Oxycephus scabrus RAFINESQUE, Indice Ittiol. Sicil., p. 13, pl. 1, fig. 2, 1810 (type locality: Sicily).

Trachyrhynchus scabrus GOODE and BEAN, Oceanic Ichth., p. 419, pl. , fig. 349, 1895 (copied). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference).

Lepidoleprus trachyrinchus RISSO, Ichth. Nice, p. 197, pl. 7, fig. 21, 1810 (type locality: Nice).

Lepidoleprus trachirhynchus RISSO, Hist. Nat. Eur. Mérid., vol. 3, p. 243, 1826 (Nice).

Lepidoleprus trachyrhynchus CUVIER, Règne Animal, vol. 2, p. 218, 1817 (reference); ed. 2, vol. 2, p. 337, 1829 (reference). --BONAPARTE, Fauna Italica, Pesci, vol. 3, pt. 1, fasc. no pagination, 1841 (reference). --SASSI, Nuov. Ann. Soc. Nat. Bologna, ser. 2, vol. 6, p. 392, 1846 (Genoa). --CARUS, Prodr. Medit., vol. 2, p. 584, 1893 (compiled).

Lepidosoma trachyrynchus SWAINSON, Nat. Hist. Animals, vol. 2, p. 261, 1838 (reference).

Macrurus trachyrhynchus GÜNTHER, Cat. Fishes Brit. Mus., vol. 4, p. 395, 1862 (compiled). --CANESTRINI, Fauna Italia, Pesc., vol. 3, p. 159, 1874 (Sicily). --CAPELLO, Piex. Portugal, p. 32, 1880. --MOREAU, Poiss. France, vol. 3, p. 281, fig. 182, 1881 (Nice; Antibes). --VAILLANT, Expéd. Sci. Travailleur et Talisman, Poiss., p. 250, pl. 21 (scale), 1888 (off Morocco; Soudan; Banc de Arguin; Cape Verde Islands; 405 to 1495 meters).

Trachyrhynchus trachyrhynchus GÜNTHER, Rep. Voy. Challenger, vol. 22, p. 152, pl. 41, fig. C, 1887 (Nice). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). --MURRAY and HJORT, Depths of the Ocean, p. 397, 1912 (south of England, 504 fathoms; off Morocco, 664 fathoms). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (name).

Trachyrinchus helolepis Gilbert

Trachyrhynchus helolepis GILBERT, Proc. U. S. Nat. Mus., vol. 14, p. 562, 1891 (type locality: Pacific coast of Central America, in 392 fathoms). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 218 (397), 1899 (lat. 0° S., long. 89° W., near Chatham Island, 392 to 421 fathoms). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference).

Trachyrincus helolepis JORDAN and EVERMANN, Bull. U. S. Nat. Mus., no. 47, pt. 3, p. 2569, 1898 (copied). --JORDAN, EVERMANN, CLARK, Rep. U. S. Comm. Fisher., pt. 2, p. 203, 1930 (reference).

Depth 6 7/8; head 3 1/3, width 2. Snout to eye 2 1/4 in head; eye 6 1/5, 2 2/3 in snout, 1 4/5 in interorbital; orbit 4 in head, 1 1/2 in snout, 1 1/10 in interorbital; maxillary reaches 4/5 in eye, length from front end 2 7/8 in head; mandibular barbel 2 1/3 in eye; teeth even, in villiform bands in jaws, of 7 or 8 irregular series; interorbital 3 2/3 in head, low, level or nearly flat. Gill rakers 4 + 19 on first arch, lanceolate, rather robust, short, 2 1/4 in gill filaments, which 2 1/4 in eye.

Scales 135 in lateral line to pseudocaudal; 4 above, 18 below, 35 predorsal of which 16? forward till opposite hind upper vertical edge of preopercle. Each scale with strong median spine, with 2 3 smaller auxilliaries; circuli fine, basal. Ridge of scales beginning each side of occiput extends back along each side of dorsal fin bases, these with larger spines.

D. II, 96?, second simple ray entire, second branched ray 4 4/5 in head; interdorsal space 1/6 of eye; A. 95?, fin height 8 in head; pseudocaudal small; pectoral rays I, 16, fin 3 1/10 in head; ventral rays I, 5, fin 4 1/2.

Dark brown, head paler. Inside mouth brown and gill opening inside blackish brown. Iris pale. Fins more or less brown, with dusky to dark brown.

Eastern Pacific.

U. S. N. M., no. 48205. Lat. 00° 29' S., long. 89° 54' 30" W., Galapagos Islands. In 392 fathoms. April 15, 1888. Albatross Collection (D.2818). Length 448 mm. Type of Trachyrhynchus helolepis Gilbert.

Trachyrinchus longirostris (Günther)

Macrurus longirostris GÜNTHER, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 23, 1878 (type locality: north east of New Zealand, 700 fathoms).

Trachyrhynchus longirostris GÜNTHER, Rep. Voy. Challenger, vol. 22, p. 153, pl. 41, fig. B, 1887 (types). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference).

Trachyrinchus longirostris WAITE, Rec. Canterbury Mus., vol. 1, no. 1, p. 17, April 25, 1907 (reference).

Trachyrinchus murrayi Günther

Trachyrhynchus murrayi GÜNTHER, Rep. Voy. Challenger, vol. 22, p. 153, pl. 41, fig. A., 1887 (type locality: Faroe Channel, 555 fathoms). --GOODE and BEAN, Oceanic Ichth., p. 418, 1895 (copied). --GARMAN, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). --BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --MURRAY and HJORT, Depths of the Ocean, p. 397 (fig. 269 copied), 1912 (Faroe-Shetland Channel; Faroe Bank, 840 meters). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1916 (reference).

Genus Lyconus Günther

Lyconus GÜNTHER, Rep. Voy. Challenger, vol. 22, p. 158, 1887.

(Type Lyconus pinnatus GÜNTHER, monotypic.)

Body compressed, with trunk long as or longer than head and ending in long, compressed, tapering tail. Head compressed, small. Snout short. Eye large. Mouth cleft wide, terminal. No mandibular barbel. Both jaws with series of wide set unequal teeth, 2 in front above, canine like, though not so large as lower teeth. Vomer with single canine tooth each side. Head with thin bones. Gill membranes not united. Gills 4. Pseudobranchiae present. Branchiostegals 7. Scales very small, cycloid, deciduous. Bones of head with narrow muciferous channels, except on top between eyes. Continuous dorsal fin on back to end of tail, some anterior rays prolonged. Anal long, extends from vent to end of tail. No caudal. Pectorals long, slender. Ventrals thoracic, moderate.

Lyconus pinnatus Günther

Lyconus pinnatus GÜNTHER, Rep. Voy. Challenger, vol. 22, p. 158, pl. 42, fig. C, 1887 (type locality: South Atlantic in mid ocean).

--GOODE and BEAN, Oceanic Ichth., p. 425, 1895 (copied).

--BRAUER, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 392, 1906 (reference). --GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 143, 1916 (name).

Lyconus brachycolus Holt and Bryne

Lyconus brachycolus HOLT and BRYNE,

--GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. 143, 1916 (name).

Genus Squalogadus Gilbert and Hubbs

Squalogadus GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. (143) 156, 1917. (Type Squalogadus modificatus GILBERT and HUBBS, orthotypic.)

Body large and massive forward, long tail tapering slenderly. ~~Head long tail tapering slenderly~~. Head ellipsoid, roumded, cavernous and flabby, without ridges, greatly exceeding very short trunk. Snout globose, massive. Eye small, lateral, high, advanced. Mouth small, inferior, behind eye. No barbel. Teeth minute, in bands in jaws only. Interorbital wide, high and convex. Lateral line with a few scattered pores. Gill membranes free from isthmus, joined anteriorly. Gills 4, on short arches, first free, without fold of membranes, slit behind last. Gill rakers slender, lanceolate. Pseudobranchiae short. Branchiostegals 7. Scales small, finely spinescent, irregular on head. Dorsal and anal long, rather low, confluent. Paired fins small.

Squalogadus modificatus Gilbert and Hubbs

Squalogadus modifcatus GILBERT and HUBBS, Proc. U. S. Nat. Mus., vol. 51, p. (143) 156, pl. 8, fig. 2, 1916 (type locality; Bungo Channel, off Kyushu, 720 fathoms).

Depth 4 2/5; head 3, width 2 1/5. Snout 3 2/5 in head, subglobose; eye 10, 3 2/5 in snout, 4 1/3 in interorbital; front end of mandible begins opposite hind eye edge; maxillary length from front end 4 in head; preoral length 2 3/5; teeth minute, even, form rather wide upper band in jaws, lower inconspicuous and less than 1/4 width of upper; interorbital 2 1/2 in head, flabby, generally convex. Gill rakers 6 + 22, slenderly lanceolate, equal eye; gill filaments 1/3 of gill rakers.

Scales 135? in lateral line; 12 above, 40? below, 78 predorsal. Scales on head larger than on body, all finely velvety to touch due to minute spinules. Scales with 12 or more minute spinules in quincunx area apically; circuli moderately fine.

D. 118, low, begins slightly before hind edge of gill opening; A. 97, fin little lower than dorsal; apparently no pseudocaudal; pectoral rays (damaged) 25, fin 3 1/2? in head; ventral rays 5, at least 3/4 of eye.

Chocolate brown. Iris dark neutral gray. Jaws and edge of gill opening dusky to nearly neutral black. Breast and belly dusky. Inside mouth and gill opening blackish. Fins more or less dusky.

Japan.-

U. S. N. M., no. 76864.

In 720 fathoms.

Albatross Collection (D.4956). Length 314 mm. Type.

Genus Macrouroides Smith and Radcliffe

Macrouroides SMITH and RADCLIFFE, Proc. U. S. Nat. Mus., vol. 43, p. 139, 1912. (Type Macrouroides inflaticeps SMITH and RADCLIFFE, orthotypic.)

Body compressed, trunk very short. Tail strongly compressed, attenuated, slender. Head ellipsoid, very soft, cavernous, without very distinct ridges. Snout subconic, of swollen appearance, projects well before mouth. Eye lateral, at first third in head. Mouth inferior, horizontal, lower jaw included. Premaxillaries protractile. Teeth villiform, in narrow bands in jaws. Gill rakers small. No pseudobranchiae. Vent well forward, close before front of anal. Each scale with single median spine and 1 or 2 lateral minute spinules on same scale. Vertical fins low, continuous.

Macrouroides inflaticeps Smith and Radcliffe

Macrouroides inflaticeps Smith and Radcliffe, Proc. U. S. Nat. Mus., vol 43, p. 139, pl. 31, fig. 2, 1912 (type locality: Batan Island, Lagonoy Gulf, Luzon, 408 fathoms). - Gilbert and Hubbs,

Proc. U. S. Nat. Mus., vol. 51, p. 143, 1916 (reference)1

Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 408, 1920 (type).

Depth 4 1/5; head 3 1/8, width 3 1/5. Snout 3 2/5 in head; eye 11 1/2, 3 2/5 in snout, 3? in interorbital; maxillary begins slightly before eye and extends well posterior, length from front end 3 in head; teeth small, uniform, villiform, in narrow bands of only 2 or 3 irregular rows along jaw edges; no mandibular barbel; interorbital 3 4/5? in head, though owing to loose flabby condition of head scarcely delimited. Gill rakers 3+17 - on first arch, short, obtuse, compressed, 1/2 of gill filaments, which 1 1/2 in eye.

Scales minute, more or less adherent, each with single medial minute spinule, also with 1 or 2 minute lateral spinules on same scale; circuli large, complete.

D. 107, begins near nape above gill opening, low, apparently more or less uniform and continuous; A. 87, like dorsal, only slightly higher, fin begins also little posteriorly or opposite middle of pectoral; pectoral rays I, 15, fin 3 1/6 in head.

Uniform dark clove brown, Iris gray. Philippines.

U. S. N. M., No 72950. East Point (Batan Island), S. 36° E., 9.2 miles (lat. 13°23′15" N., long. 124° 00′30" E.), east coast of Luzon. In 408 fathoms. June 4, 1909. Albatross Collection (D.5450). Length 147 mm. Type.

Genus Cynomacrurus Dollo

Cynomacrurus Dollo, Proc. Roy. Soc. Edinburgh, vol. 29, p. (316) 317, 1909. (Type Cynomacrurus piriei Dollo, monotypic.)

Mouth terminal. Premaxillaries teeth unequal, in narrow band separated by interspace from marginal series of teeth, one of which enlarged to form anterior lateral canine. Mandibular teeth uniserial. No barbel. Branchiostegals 6. No pseudo-branchiae. Second dorsal ray spinous, slender, smooth. Anal not much higher than second dorsal. Ventral with filament. Vent immediately before anal.

Cynomacrurus piriei Dollo

Cynomacrurus piriei Dollo, Proc. Roy. Soc. Edinburgh, vol. 29, p. (316) 321, 1909 (type locality: lat. 71°50′S., long. 23°30′W., Weddell Sea, Antarctic Ocean, 2102 meters), - Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 143, 1916 (name).

Genus Coryphaenoides Gunner

Coryphaenoides Gunner, Throndhj. Selsk. Skrift., vol. 3, pp. 43, 50, 1761. (Type Coryphaenoides rupestris Gunner, monotypic.)

Macrourus Bloch, Naturg. Ausl. Fische, vol. 3, pt. 6, p. 150, 1787. (Type Coryphaena rupestris, not Gunner) Fabricius = Macrurus Schneider, Syst. Ichth. Bloch, p. 103, 1801. (Type Coryphaena rupestris (not Gunner) Fabricius.)

Branchiostegus Rafinesque, Analyse de la nature, p. 86, 1815. On Gunner; type Coryphaenoides rupestris Gunner, virtually.)

Lepturus Gray, Cat. Fish Gronow, p. 165, 1854. (Type Lepturus brevirostris Gray = Coryphaenoides rupestris Gunner, monotypic.)

Macruroplus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, No. , vol. 8, p. 369, 1874. (Type Macrurus serratus Lowe orthotypic.)

Chalinura Goode and Bean, Bull. Mus. Comp. Zool., vol. 10, No. 5, p. 198, 1883. (Type Chalinura simula Goode and Bean, monotypic.)

Chalinurus Günther, Rep. Voy. Challenger, vol. 22, pp. 122, 144, 1887. (Type Chalinura simula Goode and Bean.)

Optonurus Günther, Rep. Voy. Challenger, vol. 22, pp. 124, 143, 1887. (Type Macrurus denticulatus Richardson, monotypic.)

Nematonurus Günther, Rep. Voy. Challenger, voll. 22, pp. 124, 150, 1887. (Type Macrurus armatus Hector, designated by Jordan, Genera of Fishes, Pt. 4, p. 437, 1920.)

Moseleya (not Quelch 1884) Goode and Bean, Oceanic Ichth., P. 417, 1895. (Type Coryphaenoides longifilis Günther, monotypic.)

Albatrossia Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47 , pt. 3, p. 2573, 1898. (Type Macrurus (Malacocephalus) pectoralis Gilbert, monotypic.)

Bogoslovius Jordan and Evermann, Bull. U. S. Nat.Mus., No. 47, pt. 3, p. 2574, 1898. (Type Bogoslovius clarki (Jordan and Gilbert) Jordan and Evermann, designated by Jordan, Genera of Fishes, pt. 4, p. 482, 1920.)

Dolloa Jordan, Amer. Naturalist, vol. 34, p. 897, 1900. (Type Coryphaenoides longifilis Günther, virtually, as Dollo Jordan proposed to replace Moseleya Goode and Bean.)

Hyomacrurus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 422, 1920. (Type Macrourus hyostomus Smith and Radcliffe, orthotypic.)

Sphagemacrurus Fowler, Amer. Mus. Novit., No. 162, p. 3, March 31, 1925. (Type Macrurus hirundo Collett, orthotypic.)

Body rather robust. Head large or short, without strongly marked ridged and more or less pronounced suborbital ridge not extending to preopercle. Snout variably short or long, obtuse or truncated, high; projects beyond mouth, not produced; usually soft to touch, except bony center. Mouth small to moderate, inferior to terminal. Barbel small or absent. Teeth various, uniserial or partly so, sometimes only so in lower jaw; sometimes in villiform bands when outer series may be enlarged. No teeth on vimer, palatines or pterygoids. Gill openings wide, membranes broadly united in front, adnate to isthmus, with posposterior free fold, strong, spiny, tubercular, fewer than 15 on lower limb of second arch. Branchiostegals 6. Bony ridges of head sometimes prominent and rough, or membrane bones of sides soft and papery. Scales moderate or large, spinous with age, keeled, imbricated, very rough; sometimes cycloid, especially in young, fluted longitudinally with slightly radiating strial. Lateral line axial, lateral, slightly arched or nearly straight above pectoral, complete. Second or elongate dorsal ray finely spinous to serrate in front. Second dorsal long, low, with numerous short rays. Sometimes soft dorsal lower than anal. Pectoral rays 10 to 22. Ventral and pectoral below first dorsal. Ventral rays 8 to 10, outer ray usually extended, origin somewhat behind pectoral origin. Vent close before or remote from anal origin.

Species of moderate or large size, usually much less than 500 mm. The oldest and best known genus, usually admitted under the later name Macrourus or Macrurus. Widely distributed in all seas in depths of from 180 to 3500 meters.

Coryphaenoides abyssorum (Gilbert)

Nematonurus abyssorum Gilbert, Proc. U. S. Nat. Mus., vol. 43, p. 374, pl. 21, fig. 23, 1915 (Type locality: lat. 33° 2' 15'' N., long. 120° 42' W., off Santa Catalina Island, in 1350 to 2182 fathoms). - Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 143, 1916 (reference). - Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher; pt. 2, p. 204, 1928 (1930) (reference).

Depth 5 2/3; head 5 1/2, width 1 2/5. Snout to eye 4 in head; eye 6, 1 1/2 in snout, 1 3/5 in interorbital; orbit 5 1/4 in head, 1 1/6 in snout, 1 1/3 in interorbital; maxillary extends slightly beyond orbit, length from front end 2 2/3 in head; mandibular barbel nearly long as eye; teeth in each jaw rather small, conic uniserial, above smaller teeth form 2 or 3 irregular inner series forward and mandible with inner pair at symphysis; interorbital 4 1/5 in head, low, slightly convex. Gill rakers 2 +9, low tubercles 3 2/5 in gill filaments, which 1 1/5 in eye.

Scales 144 in lateral line to pseudocaudal; 9 above, 19 below, 50 predorsal forward to snout tip of which about 26 forward till opposite hind eye edges. Scales with 3 to 5 radiating apical

spinuliferous keels, though none of spinules extend back beyond hind edge of scale; circuli fine, mostly complete.

D. II, 10 - 95?, second ~~simple~~ simple ray pungent, slender, length 1 7/8 in head; interdorsal space 1 1/2; A. 112?, fin height 4; pseudocaudal very small, short; pectoral rays I, 18, fin 1 1 2/3 in head; ventral rays I, 10, fin 1 3/4.

Dark brown, more or less uniform and nearly neutral blackish on breast and belly. Inside mouth and gill opening blackish. Iris brownish. Fins all dark brown. Off California.

U. S. N. M., No. 75827. Lat. 33° 2' 15'' N., Long. 120° 42' W., off Santa Catalina Island. In 1350 to 2182 fathoms. Albatros Collection (D.4390). Length 803 mm. Type.

Coryphaenoides acrolepis (T. H. Bean)

Macrurus acrolepis T. H. Bean, Proc. U. S. Nat. Mus., vol. 6, p. 362, 1883 (type locality: Port Townsend, Washington.

--Jordan, Rep. U. S. Fish Comm., pt. 13, p. 919, 1885 (1887) (reference).--

Gilbert, Rep. U. S. Fish Comm., pt. 19, p. 457, 1893 (1895) (off Vancouver and Oregon, 345 to 786 fathoms). -- Garman, Mem. Mus. Comp. Zool., vol 24, p. 396, 1899 (reference).

Macrurus (Macrurus) acrolepis Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 389, 1906 (reference).

Macrourus acrolepis Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2585, 1898 (Bogoslof Island record).--

Jordan and Gilbert, Fur Seals Isl. North Pacific, pt. 3, p. 487, 1899 (off Bogoslof Island, 664 fathoms). -- Evermann and Goldsborough, Bull. Bur. Fisher., vol. 26, p. 350, fig. 131, 1906 (1907) (north of Aleutian Islands).--

Gilbert and Burke, Bull. Bur. Fisher., vol.30, p. 91, 1910 (1912) (off Aleutians and Kamchatka).

Coryphaenoides acrolepis Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol 51, p. (143) 162, 1917 (reference).

Coryphaenoides bona-nox Jordan and Thompson, Mem. Carnegie Mus., vol. 6, No. 4, p. 305, pl. 38, figs. 1--1a, 1914 (type locality: Sagami Bay, Japan).

Nematonurus bona-nox Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (143) 162, 1916 (Enoshima).

Depth 5 3/4 to 8 1/4; head 4 3/4 to 5 1/2, width 1 7/8 to 2 1/10. Snout 3 1/3 to 3 7/8 in head; eye 3 1/3 to 4 1/8, 1 to 1 1/8 in snout, greater than interorbital; maxillary reached 3/5 to 3/4 in eye, length from front end 2 2/5 to 3 in head; preoral length 1/2 to 2/3 of eye; teeth conic, short, simple in jaws, in 2 or 3 irregular transverse series, lower band little narrower; mandibular barbel 1 3/5 in eye; interorbital 4 1/8 to 5 1/8 in head, low, slightly convex, often slightly depressed medially. Gill rakers 3 + 10 short knobs on second arch, 2/5 gill filaments, which 1/2 of eye.

Scales 170 to 175 in lateral line, of which 22 to 24 forward of vent; 10 above, 24 below, 67 predorsal. Scales on muzzle, interorbital and under surface of head much smaller, others like those on body. Scales rather firmly adherent, largest on abdomen. Scales with 5 to 8 radiating keels apically,

each stria crowned with row of spinules, last projecting at scale edge; circuli very fine, complete.

D. II, 11 -- 115 to 122, second ~~siniple~~ simple ray with front edge denticulate, length 1 1/10 to 1 3/5 in head, second dorsal rays all lower than anal rays; A. 100 to 113; no distinct caudal; pectoral rays I, 19, fin 1 4/5 to 2 in head; ventral rays I, 7, fin 1 4/5 to 2, first ray elongate filament.

Uniform dark chocolate brown. Iris brown. Inside gill opening and mouth blackish. Fins dark brown. Sometimes preserved examples quite pale or light brown.

North Pacific. The series here studied shows considerable variation. Often specimens have regenerated subcaudals, due likely to injury or the filaments having been lost in some way. These subcaudals are variable though usually quite small.

U. S. N. M., No. 32496. Washington Territory. J. G. Swan. Length 635 mm. Type. A large specimen in very poor condition, soft and flabby.

U. S. N. M., No. 45356. Lat. 51°

Albatross Collection (D.). Length 240 mm.

U. S. N. M., No. 45357. Lat. 51°

Albatross Collection (D. 2860). Length 145 to 247 mm. 17 examples.

U. S. N. M., No. 46471.

Albatross Collection (D. 2923). Length 323 to 345 mm. 2 examples.

U. S. N. M., No. 46473.

Albatross Collection (D. 3071). Length 185 to 283 mm. 4 examples.

U. S. N. M., No. 46474.

Albatross Collection (D. 3073). Length 353 mm.

U. S. N. M., No. 46546.

Albatross Collection (D. 2986). Length 280 mm.

U. S. N. M., 46547.

Albatross Collection (D. 3075). Length 422 mm.

U. S. N. M.,No. 47214.

Bur. Fisher. (869). Length 715 mm.

U. S. N. M., No. 47216.

Bur. Fisher. (122). Length 600 mm.

U. S. N. M., No. 47217.

Bur. Fisher. (120). Length 585 mm.

U. S. N. M., No. 47218.

Bur. Fisher. (854). Length 423 mm.

U. S. N. M., No. 47222.

Albatross Collection (104). Length 362 mm.

U. S. N. M., No. 47224.

Albatross Collection (108). Length 358 mm.

U. S. N. M., No. 47225.

Bur. Fisher. (125). Length 460 mm.

U. S. N. M., No. 47229.

Bur. Fisher. (105). Length 405 mm.

U. S. N. M., No. 47230.

Albatross Collection ( ). Length 432 mm.

U. S. N. M., No. 47231.

Bur. Fisher. (848). Length 437? mm.

U. S. N. M., No. 47234

Bur. Fisher. (851). Length 510? mm.

U. S. N. M., No. 48777.

Bur. Fisher. (1735). Length 470 mm.

U. S. N. M., No. 49093.

Bur. Fisher. (1378). Length 392 mm.

Bur. Fisher. (1379). Length 435 mm.

Bur. Fisher. (1384). Length 400 mm.

Bur. Fisher. (1386). Length 432 mm.

U. S. N. M., No. 49111.

Bur. Fisher. (634). Length 208 mm.

U. S. N. M.., No. 53878.

Albatross Collection (D. 2890). Length 177 mm.

U. S. N. M., No. 53879.

Albatross Collection (D. 2860). Length 198 to 258 mm. 8 examples.

U. S. N. M., No. 54108.

Albatross Collection (D. 2871). Length 270 to 328 mm. 4 examples.

U. S. N. M. No. 54114.

Albatross Collection (D. 2860). Length 228 to 398 mm. 2 examples.

U. S. N. M., No. 54362. Lat. 54°32'N., Long. 178°31'E.

Albatross Collection (2599) Length 168 mm.

Albatross Collection (2601) Length 128 mm.

U. S. N. M., No. 54363. Lat. 39°48'20"N., Long. 124°47'5".

Albatross Collection (D. 2426). Length 385 mm.

U. S. N. M., No. 54365.

Albatross Collection (D. 2420). Length 315 mm.

Albatross Collection (D. 2430). Length 378 mm.

Albatross Collection (D. 2431). Length 330 mm.

Albatross Collection (D. 2432). Length 255 mm.

Albatross Collection (D. 2433). Length 298 mm.

Albatross Collection (D. 2434). Length 354 mm.

Albatross Collection (D. 2435). Length 235 mm.

Albatross Collection (D. 2436). Length 300 mm.

Albatross Collection (D. 2437). Length 188 mm.

U. S. N. M., No. 70975.

June 3, 1906.

Albatross Collection (D. 4767). Length 235 to 258 mm. 2 examples

U. S. N. M., No. 70976.

June 3, 1906.

Albatross Collection (D. 4768). Length 148 to 310 mm. 2 examples.

U. S. N. M., No. 70977.

Albatross Collection (D. 4774). Length 145 to 165? mm. 2 examples.

U. S. N. M., No. 70978.

Albatross Collection (D. 4775). Length 196 to 334 mm. 5 examples.

U. S. N. M., No. 75577. Lat. 51°23'N., long. 130°34'W.

Albatross Collection (D. 2860). Length 218 to 433 mm. 27 examples.

U. S. N. M., No. 75618.

Albatross Collection (D. 4542). Length 275 mm.

U. S. N. M., No. 75619.

Albatross Collection (D. 4336). Length 310 mm.

U. S. N. M., No. 75620.

Albatross Collection (D. 4405). Length 230 to 363 mm. 3 examples.

U. S. N. M., No. 76010. Lat. 32°32'40"N., long. 118°4'20"W.

Albatross Collection (D. 4387). Length 343 mm.

U. S. N. M., No. 87578.

Albatross Collection ( ). Length 337 mm.

Coryphaenoides aequalis Günther

Coryphaenoides aequalis Gunther, Ann. Mag. Nat. Hist., ser. 5, vol. , p. 25, 1878 (type locality: Deep sea south of Portugal, 600 fathoms); Rep. Voy. Challenger, vol. 22, p. 134, pl. 32, fig. C, 1887 ( ). __ Vaillant, Exped. Sci. Travailleur et Talisman, Poiss., p. 228, 1888 (reference).

Macrurus aequalis Goode and Bean, Oceanic Ichth., p. 392, 1895 (reference).

__Köhler, Ann. Univ. Lyon, vol. 26, 1896, p. 495 (Gulf of Gascony, 1410 meters). __Collett, Res. Camp. Sci. Monaco, vol. 10, p. 75, pl. 2, figs. 9-9b, 1896 (north of Saõ Jorge, Azores, 861 meters). Garman, Mem. Mus. Comp. Zoology, vol. 24, p. 396, 1899 (reference). Murray and Hjort, Depths of the Ocean, p. 397, fig. 270, 1912 (Faroe Banks; west of Brest; Bay of Biscay; off north west Africa; 504 to 1424 fathoms).

Macrurus (Macrurus) aequalis Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 389, 1906 (reference).

? Coryphaenoides serratus W. Thomson, Voyage of Challenger, vol. 1, p. 118, fig. 3, 1877 (type locality);

Chalinura serrula T. H. Bean, Proc. U. S. Nat Mus., vol. 13, p. 37, 1890 (type locality: Lat. 55°20'N., long. 136°20'W., 1569 fathoms, east of Prince of Wales Island, British Columbia). — Goode and Bean, Oceanic Ichth., p. 412, 1895 (reference). — Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2576, 1898 (copied). —

Garman, Mem. Mus. Comp. Zool., vol 24, p. 395, 1899 (reference). — Evermann and Goldsborough, Bull. Bur. Fisher., vol. 26, p. 349, 1906 (1907) (name).

Coryphaenoides serrulus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference).

Depth 7 1/5 to 7 1/2; head 4 2/5 to 4 7/8, width 2. Snout 3 7/8 to 4 in head; eye 5 1/2 to 6, 1 2/5 to 1 2/3 in snout, 1 2/5 to 1 1/2 in interorbital; preoral length little inclined from vertical, short, 7 3/4 to 9 1/5 in head; maxillary reaches 3/4 to 4/5 in eye, length from front end 2 1/4 to 2 2/5 in head; mandibular barbel 6; teeth in villiform bands in jaws, 7 rows transversely above of which outer enlarged, lower narrower band of 2 or 3 irregular rows; interorbital 4 to 4 1/5 in head, low or very slightly convex. Gill rakers 1 + 10 low spinescent tubercles on second arch, 1/2 of gill filaments.

Scales (pockets) 140? in lateral line; 7 or 8 above, 18 or 19 below, 24 predorsal forward opposite hind eye edge. Scales very caducous, most all fallen. Scales with 3 parallel apical spinuliferous ridges, last spinules not extended beyond hind scale edge; circuli moderate, complete.

D. II, 9 — 80 to 96, second ~~simple~~ simple ray slender, row of small antrorse spinules along its front edge, length 1 1/2? to 1 2/3? in head; interdorsal space 2 1/2 to 2 3/5; A. 105, fin height 3 1/3? to 5?; pectoral rays I, 16, fin 2 to 2 1/5 in head; ventral rays I, 9, fing 1 to 1 1/5 in head, first ray ending in long filament.

Light brown, doubtless due to preservation alcohol. Irisdark gray. Opercles and branchiostegal region gray borwn. Inside mouth gray. Inside gill opening blackish brown. Belly and abdomen not dark in type, neutral or blackish brown in smaller paratypes, though breast and chest pale in all. Fins pale.

Atlantic and eastern Pacific Oceans.

U. S. N. M., No. 45358.

Albatross Collection (D. 2859). Type 313 mm and 2 paratypes

151 to 200 mm.

Coryphaenoides aequatoris (Smith and Radcliffe)

Macrourus aequatoris Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 120, pl. 26, fig. 3, 1912 (type locality: Gulf of Tomini, Celebes, in 1089 fathoms).

Coryphaenoides aequatoris Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 419, 1920 (type; Gulf of Tomini, 1092 fathoms).

Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 30, 1929 (copied).

Depth 5 1/3 to 5 3/4; head 4 1/6 to 4 1/4, width 1 3/5 to 1 4/5. Snout to eye 3 1/5 to 3 1/2 in head; eye 5, 1 to 1 1/4 in snout, 1 to 1 1/8 in interorbital; orbit 4 in head, 1 in snout, 1 1/5 times interorbital; preoral short, little inclined, length 5 1/2 in head; maxillary reached 1/3 to 1/2 in eye, length from front eye 3 1/10 to 3 3/5 in head; mandibular barbel 1 2/5 to 1 1/2 in eye; teeth in villiform bands in jaws, of 5 to 7 irregular transverse series, upper outer row slightly enlarged; interorbital 4 to 4 1/8 in head, low, nearly level, at least forward. Gill rakers 0 or 1 + 5 or 6, low spinescent tubercles, 1/2 of gill gilaments, which 2 2/3 to 3 1/3 in orbit.

Scales (pockets) 83 to 106 in lateral line; 6 above, 15 to 17 below, 38 predorsal of which 15 forward to hind orbital edge. Scales with 9 to 13 irregular rows of slender spinules, last extend behind scale edge; circuli moderate, complete.

~~616~~
619

D. II, 11 — 60, second ~~simple~~ simple ray slender, front edge with row of antrorse spinules, length 1 2/5 to 2 1/8? in head; interdorsal space 4 1/5 to 4 1/2; A. 70, fin height 3 to 4; pectoral rays I, 21, fin 2 in head; ventral rays I, 8, first simple ray ends in long filament, slightly longer than head.

Largely uniform brown. Under surface of head, breast and belly darker than above, inclining to blackish brown. Branchiostegal region blackish brown. Iris gray. Inside mouth gray. Inside gill opening blackish brown. Fins all brownish.

U. S. N. M., No. 72937.

Albatross Collection (D. 5608). Length 187 mm.

U. S. N. M., No. 78237.

Albatross Collection (D. 5608). Length 170 mm to end of broken tail.

Paratype.

Coryphaenoides albatrossus (Townsend and Nichols)

Macrourus albatrossus Townsend and Nichols, Bull. Amer. Mus. Nat. Hist., vol. 42, p. 17, 1925 (type locality: lat. N. 31° W., southward of San Diego, California, in 1076 fathoms). — Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., pt. 2, p. 260, 1928 (1930) (reference).

Depth 6 3/4?; head 5 2/5?, width 2. Snout to eye 4 1/2 in head; eye 3 3/4, 1 in snout, 1 1/4 times interorbital; orbit 3 in head, twice snout, twice interorbital; maxillary reaches opposite 1/2 of orbit, length from front end 2 1/8 in head; mandibular symphysis with small knob protuding below; mandibular barbel?; interorbital 6 4/5 in head, low, nearly level. Gill rakers 2 + 9, low spinescent knobs, 2 1/2 in gill filaments, which 1/3 of orbit.

Scales 120?, though only 60 counted far as intact portion of tail; 9 above, 17 below, 25 predorsal forward until opposite hind edge of orbit. Scales with 6 or 7 nearly parallel apical keels, spinuliferous, last spinules not extending behind scale edge; circuli fine, complete.

D. II, 11 — 100? at least, second ~~simple~~ simple ray slender, pungent, front edge with row of small antrorse serrae, length 1 4/5 in head; interdorsal space 1 2/3 in orbit; A. 80? or more, fin height 1 1/2? in orbit; pectoral rays I, 14, fin 1 2/3 in head; ventral rays I, 9, fin 1 2/3.

Dark brown generally, scale pockets all darker and form reticulated pattern. Iris dark gray. Inside mouth and gill opening dark gray. Fins dark, more or less dusky. Off California.

U. S. N. M., No. 87555. In 1056 fathoms, April 25, 1911. Albatross Collection (D. 5692). Length 470? mm. tail broken. Type.

Coryphaenoides affinis Günther

Coryphaenoides affinis Günther, Ann Mag. Nat. Hist., ser. 5, vol 2, p. 27, 1878 (type locality: deep sea east of mouth of Rio Plata, 1900 fathoms); Rep. Voy. Challenger, vol. 22, p. 151, pl. 40, fig. B, 1887 (types).

Nematonurus affinis Goode and Bean, Oceanic Ichth., p. 416, 1895 (copied).

Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference).

Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p 43, 1916 (reference).

Macrurus (Nematonurus) affinis Brauer, Deutsch. Tiefsee Exped. valdivia, vol. 15, p. 391, 1906 (reference).

Coryphaenoides altipinnis Günther

Coryphaenoides altipinnis Gunther, Ann. Mag. Nat. Hist., ser. 4, vol. 20, p. 439, 1877 (type locality: south of Yeddo, Japan, in 565 to 1875 fathoms).

Goode and Bean, Oceanic Ichth., p. 402, 1895 (name). Garman, mem. Mus. Comp. Zool., vol. 24, p. 396, 1899 (reference).

Jordan and Snyder, Annot. Zool. Japan; vol. 3, p. 120, 1901 (compiled).

Jordan, Tanaka, Snyder, Journ, College Sci., Tokyo, vol. 33, p. 416, 1913 (compiled). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (144) 162, 1917 (reference).

Macrurus altipinnis Günther, Rep. Voy. Challenger, vol. 22, p. 138, pl. 39, fig. A, 1887 (type).

Corypnaenoides anguliceps (Garman)

Macrurus anguliceps Garman, Mem. Mus. Comp., vol. 24, p. 212 (397), pl. G, fig. 1, pl. 1 (skull), pl. 83, fig. 2 (lateral system), 1899 (type locality: lat. 5°56'N., long. 85°10'30"W., in 1175 fathoms; Gulf of Panama; east of Galapagos; Gulf of California; in 695 to 1322 fathoms).

Macrurus (Macrurus) anguliceps Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Macrourus anguliceps Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., pt. 2, p. 206, 1930 (reference).

Coryphaenoides anguliceps Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference).

Depth 5 2/3 to 6 7/8; head 4 1/8 to 5, width 1 7/8 to 2. Snout to eye 3 in head; eye 4 3/4 to 5, 1 1/2 to 1 3/4 in snout, 1 in interorbital;

orbit 4 2/5 in head, 1 1/5 in snout, 1 1/5 to 1 1/4 times interorbital; preoral profile concave, length 1 1/4 to 1 2/5 in orbit; maxillary reaches in head; mandibular barbel 2 2/3 to 2 3/4 in orbit; teeth in villiform bands in jaws, of 5 or 6 irregularly transversely - above with outer row of slightly enlarged ones, lower uniform and in 5 or 6 irregularly transverse rows; interorbital 4 3/4 to 5 2/5 in head, low, nearly level. Gill rakers 1 + 6, low spinescent tubercles on second arch, 1/2 of gill filaments, which 1/3 of orbit.

Scales (pockets) 118 in lateral line; 8 or 9 above, 19 or 20 below, 50 predorsal forward to snout end, of which 25 forward till opposite hind eye edge. Scales with 8 or 9 parallel rows of spinules apically, last extend beyond scale edge; circuli fine, obsolete apically.

D. II, 8 — 89, second ~~simple~~ simple ray slender, front edge with row of antrorse denticles, length 1 3/5 to 2 3/5 in head; interdorsal space 3 1/2; A. 92, fin height 7 in head; pectoral rays I, 16, fin 2 1/5? in head; ventral rays I, 7, fin 2 3/4, first ray filamentous.

Brown, darker on head and trunk, especially below. Iris slate. Inside mouth pale, grayish. Inside gill opening blackish. Fins more or less dusky.

Gulf of California, Panama, Galapagos. Garman's colored figure shows longer filaments than those on the first dorsal and ventrals of my specimens.

U. S. N. M., No. 57858. Lat. 5°26'20"N., long. 86°55'W., Gulf of Panama, Albatross Collection (D.3371). Length 352 to 355 mm. 2 examples

Coryphaenoides aratrum Gilbert

Coryphaenoides aratrum Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 674, fig. 264, 1903 (1905) (type locality: off southern Oahu, in 289 to 337 fathoms; Pailolo Channel, in 297 to 306 fathoms). — Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (432) 515, 1920 (reference). — Fowler, Mem. Bishop Mus., vol. 10, p. 86, 1928 (type).

Coryphaenoides parallelus (not Gunther) Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 421, 1897 (Hawaiian Islands, in 313 fathoms).

Depth 6 1/5 to 6 1/2; head 3 1/10 to 3 1/2, width 2 to 2 1/10. Snout to eye 2 in head; eye 5 3/4 to 5 7/8, 2 3/4 to 3 in snout, 1 1/3 to 1 2/5 in interorbital; orbit 3 7/8 to 4 3/4 in head, 1 2/3 to 2 1/4 in snout, subequal to slightly greater than interorbital; maxillary reaches 3/5 to 2/3 in eye, length from front end 4 1/10 to 4 1/3 in head; mandibular barbel 1/2 of eye; teeth in rather broad villiform bands, 6 or 8 irregularly transversely; interorbital 4 to 4 1/3 in head, low, but very little convex. Gill rakers 1 + 6 or 7 low spinescent tubercles on second arch, 1/4 of gill filaments, which 1 2/5 in eye.

Scales 75 in lateral line to pseudocaudal; 6 above, 15 below, 10 predorsal forward to occiput and 25 more still forward to snout tip. Scales with 3 to 5

spinuliferous apical keels, median little enlarged, posterior extending over scale edge; circuli fine, not distinct apically.

D. II, 8 __ 64, second ~~simple~~ simple ray slender, entire, length 2 1/4 to 3 in head; interdorsal space 6 7/8 to 7 1/5; A. 68, fin height 4 1/5 to 6; pseudocaudal usually long as eye; pectoral rays I, 14 or I, 15, length 2 1/4 to 2 1/2 in head; ventral rays I, 6, length 3 to 3 1/4.

Brown, little paler on under surfaces, especially of head below and abdomen. Iris whitish. Inside mouth and gill opening blackish. Fins brownish, first dorsal and paired fins more or less dusky to dark brown.

Hawaiian Islands. U. S. N. M., No. 51656.

Albatross Collection (D.). Length 313 mm. Type. U. S. N. M., No. 51697.

Albatross Collection (D.). Length 355 to 370 mm. 2 paratypes.

~~624~~
627

Coryphaenoides ariommus Thompson

Coryphaenoides ariommus Thompson, Proc. U. S. Nat. Mus., vol. 50, p. 471, pl. 5, fig. 1, 1916 (type locality: lat 38°8'S., long. 75°53'W., off Lota, Chile). —

Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1917 (reference).

Depth 5 2/3 to 6; head 4 1/5 to 4 1/4, width 1 4/5 to 1 7/8. Snout to eye 3 1/8 to 3 1/5 in head; eye 4 3/4 to 5, 1 2/5 to 1 3/4 in snout, 1 1/8 to 1 1/4 in interorbital; orbit 3 1/4 to 3 4/5 in head, 1 to 1 1/8 in snout, 1 1/8 to 1 1/5 times interorbital; maxillary reaches 1/4 to 1/3 in eye, length from front end 3 1/4 to 3 1/2 in head; teeth in villiform bands in jaws, of 5 or 6 transverse irregular series; interorbital 4 1/8 to 4 1/4 in head, low, slightly depressed. Gill rakers 1 + 6, low spinescent tubercles on first arch, 1/3 of gill filaments, which 1/3 in eye.

Scales (pockets) 110 to 120 in lateral line; 7 or 8 above, 20? below, 20 predorsal forward to occiput which at first fourth between hind orbital edge and first dorsal origin. Scales with 3 or 4 (9 to 11 according to Thompson) nearly parallel rows of spinules, rarely extending beyond hind scale edge; circuli moderate, complete.

D. II, 8 __ 84, second slender ~~simple~~ simple ray with row of antrorse spinules along its front edge, first branched ray about 1/2 of head; interdorsal space 2 7/8 to 4 1/2; A. 77 to 80, fin height 4 1/4 ?; pectoral fin rays I,

20, fin 1 4/5? in head; ventral fin I, 8, fin 2 1/8 to 2 2/5.

Brownish to drab. Head pale to whitish. Inside mouth pale. Iris whitish or grayish. Inside gill opening blackish. Fins all brownish.

Off Chile. My materials, all in rather poor conditions, so proportions of fins very unsatisfactory, also squamation. U. S. N. M., No. 76859. Lat. 38°8'S., long. 75°53'W.

Albatross Collection (D. 2791). Length 247 mm. Type. U. S. N. M., No. 76891.

Albatross Collection (D. 2791). Length 241? to 337? mm. 5 examples. Paratypes.

Coryphaenoides armatus (Hector)

Macrurus armatus Hector, Trans. New Zealand Inst., vol. 7, p. 249, pl. 11, fig. 78a, 1873 (1874) (type locality: off Cape Farewell, in 400 fathoms). — Günther, Rep. voy. Challenger, vol. 22, p. 150, pl. 40, fig. A, 1887 Between the Cape and Kerguelen Island; South Pacific; Mid-Pacific; type; in 400 to 2425 fathoms).

Macrurus (Nematonurus) armatus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol.15, p. 391, 1906 (reference). — Murray and Hjort, Depths of the Ocean, p. , 1912 (off Gibralter; Canaries; Azores; 1424 to 2570 fathoms.

Nematonurus armatus Goode and Bean, Oceanic Ichth., p. 416, 1895 (names). — Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). — Waite, Rec. Canterbury Mus., vol. 1, No. 1, p. 17, April 25, 1907 (reference). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 143, 1916 (reference).

Coryphaenoides variabilis Günther, Ann Mag. Nat. Hist. ser. 5, vol. 2, p. 27, (type locality: midway between Cape of Good Hope and Kerguelan Land; south of Australia; Mid-Pacific; south west of Juan Fernandez; 135 to 2425 fathoms).

Coryphaenoides gigas Vaillant, Exped. Sci. Travilleur et Talisman, Poiss., p. 232, pl. 20, fig. 2, 1888 (type locality: between Azores and France, 4165 to 4255 meters).

— Garman, Mem. Mus. Comp. Zool., vol. 24, p. 396, 1899 (reference.)

Nematonurus gigas Goode and Bean, Oceanic Ichth., p. 416, 1895 (copied). — Roule, Bull Inst. Ocean. Monaco, No. 320, p. 21, May 20, 1916 (off Azores, 3020 meters). —

Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 143, 1917 (reference). — Roule, Rés. Camp. Sci. Monaco, vol. 2, p. 87, pl. 3, figs. 1-a, 1919 (50 miles north of Sao Miguel, 3020 meters). — Vaillant, Rés. Camp. Sci. Monaco, VOL. 52, p. 134, 1919 (lat. 34° to 38°N., long 8° to 23°W., 3610 to 4020 meters).

~~628~~
631

Macrurus (Nematonurus) gigas Brauer, Deutsch. Tiefsee

Exped. Valdivia, vol. 15, p. 391, 1906 (reference).

~~629~~
632

Coryphaenoides asper Günther

Coryphaenoides asper Günther, Ann. Mag. Nat. Hist., ser. 4, vol. 20, p. 440, 1877 (type locality: south of Philippines and Japan, 1875 fathoms). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference).

Macrurus asper Goode and Bean, Bull. Mus. Comp. Zool., vol. 10, No. 5, p. 196, 1883 ( ). — Jordan, Rep. U. S. Fish Comm., pt. 13, p. 919, 1885 (1887) (reference). — Günther, Rep. Voy. Challenger, vol. 22, p. 137, pl. 36, fig. A, 1887 (type). — Goode and Bean, Oceanic Ichth., p. 390, 1895 (reference). — Garman, Mem. Mus. Comp. Zool., vol. 24, p. 396, 1899 (reference).

Macrurus (Macrurus) asper Brauer, Deutsch. Tiefsee Exped. Valdivia, ~~Vol.~~ vol. 15, p. 390, 1906 (reference).

Macrourus asper Jordan and Snyder, Annot. Zool. Japan., Tokyo, vol. ~~Vol.~~ vol. 3, p. 120, 1901 (south of Japan). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, p. 417, 1913 (compiled).

Macrurus (Macrurus) asper Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Macrourus asper Jordan and Snyder, Annot. Zool. Japan., Tokyo, vol. 3, p. 120, 1901 (south of Japan). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, p. 417, 1913 (compiled).

Depth 4 3/5 to 7 3/5; head 4 3/5 to 5 3/5, width 1 3/5 to 1 5/6. Snout to eye 3 1/8 to 4 1/5 in head; eye 6 2/5 to 8 1/5, 1 7/8 to 2 in snout, 1 2/5 to 2 in eye; orbit 5 1/4 to 5 7/8 in head, 1 1/3 to 1 2/5 in snout, 1 1/3 to 1 1/2 in interorbital; preoral length vertically inclined, little less than orbit; maxillary extends little behind eye or orbit with age, in young about 4/5 in eye, length from front end 2 2/3 to 2 4/5 in head; teeth in very narrow bands or uniserial in young, apparently more or less biserial with age and lower ones larger; mandibular barbel about long as eye; interorbital 4 1/6 to 4 1/2 in head, low and broadly convex. Gill rakers 1 or 2 + 10 short low tubercles, 1/3 of gill filaments which 1 1/3 in eye.

Scales 110 to 120? in lateral line; 9 or 10 above, 19 to 21 below, 40 to 44 predorsal of which 20 to 23 extend forward to eye. Scales with 7 to 14 apical parallel ridges, greater number with age; only in young does t terminal spine of each extend beyond scale edge; circuli rather coarse, parallel, basal.

D. II, 8 or II, 9-78, second ~~simple~~ simple ray with row of antrorse spines along front edge, length 1 2/5 to 1 3/5 in head; interdorsal space 1 1/2 to 2; A. 75, fin height 2 2/3; pectoral rays I, 18, fin length 1 3/5 to 1 3/4 in head; ventral I, 9, fin 1 3/4 to 1 4/5.

Uniform brown, gill openings and opercles often darker. Inside mouth and gill opening dark or dusky. Eyes grayish. Fins brown, like back, often with dark shadings.

Eastern Pacific. My examples differ from Günther's figure as he shows the pectorals reaching nearly to anal, dorsal and ventral extending will beyond the anal and the interdorsal space small or 3 2/3 in head. In my large specimen though the low second dorsal begins behind the anal, the depressed dorsal fin reaches 1 2/5 to it or not quite opposite anal origin and the ventral reaches only 1 2/5 to the anal. Its caudal also 3 in head.

U. S. N. M., No. 33274.

Length 320 mm.

U. S. N. M., No. 33276.

Length 346 mm.

U. S. N. M., No. 33302.

Length 347 mm.

U. S. N. M. No. 33274

Length 320 mm.

U. S. N. M., No. 33276.

Length 346 mm.

U. S. N. M., No. 33302.

Length 347 mm.

U. S. N. M., No. 33303.

Length 320 mm.

U. S. N. M., No. 33392.

Length 336 to 377 mm. 3 examples.

U. S. N. M., No. 38082.

Length 250 to 313 mm.

U. S. N. M., No. 38100.

Length 250 to 270 mm. 3 examples

U. S. N. M., No. 38102.

Length 257 mm.

U. S. N. M., No. 38104.

Length 503 mm.

U. S. N. M., No. 38161.

Length 660 mm.

U. S. N. M., No. 38169.

Length 333 mm.

U. S. N. M., No. 38203

Length 330 mm.

U. S. N. M., No. 45876.

Length 487 mm. Large lernean on side.

U. S. N. M., No. 45878

Length 330 mm.

U. S. N. M., No. 45879.

Length 265 mm. 2 examples.

U. S. N. M., No. 45880.

Length 442 mm.

U. S. N. M., No. 45881.

Length 446 mm.

U. S. N. M., No. 45882.

Length 343 mm.

U. S. N. M., No. 45883.

Length 243 to 283 mm. 2 examples.

U. S. N. M., No. 45884.

Length 214 to 305 mm. 2 examples.

Coryphaenoides asprellus (Smith and Radcliffe)

Macrourus asprellus Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 118, pl. 26, fig. 1, 1912 (type locality: southeast of Bachian Island, Dutch East Indies, in 845 fathoms).

Coryphaenoides asprellus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 410, 1920 (type). -- Weber and Beaufort, Fishes Indo Austral. Arch., vol. 5, p. 33, 1929 (compiled.)

Depth 5 4/5? (tail mutilated)1 head 4 3/5, width 2 1/8. Snout 4 in head; eye 4, 1 in snout, 1 1/6 in interorbital; maxillary reaches 3/4 in eye, length from front end 3 in head; barbel 2 in eye; teeth in villiform bands in jaws, 5 or 6 irregularly in transverse series; interorbital 3 1/2 in head, low, broadly convex. Gill rakers 0+6, low spinescent tubercles on first arch, 1/3 of gill filaments, which 2 1/5 in eye.

Scales 100 in lateral line; 6 above, 17? below, 15 or 16 predorsal forward to occiput. Scales with 13 or 14 parrallel rows of apical spinules, last extending beyond scale edge; circuli fine, complete.

D. II, 9--71, second ~~simple~~ simple ray slender, front edge with row of small antrorse serral, length 1 1/2? in head; interdorsal space 5 2/3; A. 70, fin height 3 4/5?; pectoral rays I, 19, fin 1 4/5? in head; ventral rays I, 7?, fin 2 1/5?

Uniformly ~~brown~~ brown. Iris dark to blackish brown. Lips rather light brown. Branchiostegal region and inside gill opening blackish brown. Inside mouth dark. Fins all balck-ish brown. East Indies.

U. S. N. M., No. 72935. Selang Point (Bachian Island), N.56°W., 12.5 miles (lat. 1°00'00"S., long. 127°50'00"E.), south of Patiente Strait. In 845 fathoms. December 2, 1909. Albatross Collection (D. 5632). Length 413 mm. Type.

Coryphaenoides atherodon (Gilbert and Cramer)

Optonurus atherodon Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 431, pl. 46, fig. 1, 1896 (type locality: Hawaiian Islands, 298 to 343 fathoms). — Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). — Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 663, 1903 (1905) (Pailolo Channel; of Oahu; Bird Island; Kanai; of Hawaii; Maui; Kaiwi Channel; 165 to 513 fathoms).

Macrurus (Optonurus) atherodon Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Lionurus atherodon Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference).

Ventrifossa atherodon Gilbert and Hubbs, Bull. U. S. Nat. Mus., vol. 10, p. 87, 1928 (Compiled).

Depth 5 3/4 to 8; head 4 2/5 to 5 2/5, width 1 3/5 to 2 1/4. Snout 3 7/8 to 4 1/4 in head; eye 3 to 3 3/2, greater than snout or interorbital; maxillary reaches 1/2 to 2/3 in eye, length from front end 2 to 2 1/5 in head; preoral length short; mandibular barbel slender, 1 1/2 to 1 2/3 in eye; teeth in villiform bands in jaws, upper band little wider and outer row little enlarged; interorbital 4 1/4 to 4 4/5 in head, low, nearly level or uneven

with few depressions. Gill rakers 2 +15, low spinescent knobs on second arch, 1/3 of gill filaments, which 1/3 of eye.

Scales 168? in lateral line; 10 above, 17 below, 43 predorsal. Scales mostly all fallen, very deciduous, rough velvety to touch and equally large on head as on body, Scales with group of small siniple spinules, 20 or more apically; circuli r rather fine.

D. II, 9 to II, 11__157?, second ~~siniple~~ simple ray slender, smooth, at least 1/2 in head; interdorsal space 1 1/2 to 2 1/4; A. 155?, fin higher than low second dorsal; sometimes small short pseudocaudal; pectoral rays I, 19 to I, 22, fin 1 2/3 to 1 4/5 in head; ventral rays I, 9, fin 3 to 3 1/5.

Brown generally, becomes leaden to neutral gray on lower half of head, breast and belly, even neutral black below. Iris gray. Inside mouth whitish, gill opening blackish. Jaw edges dark. Fins brownish, bases of paired fins nearly neutral clack. Hawaiian Islands.

U. S. N. M., No. 44489.

Length 320 to 368 mm. 2 examples.

U. S. N. M., No. 47703.

Albatross Collection (D. 3471). Length 208 mm.

U. S. N. M., No. 47705.

Albatross Collection (D. 3476). Length 130 to 168 mm. 3 examples.

U. S. N. M., No. 47714.

Albatross Collection (D. 3470). Length 148 to 198 mm. 7 examples.

U. S. N. M., No. 47729.

Albatross Collection (D. 3474). Type 350 mm. Length 145? to 330 mm. 5 paratypes.

U. S. N. M., No. 55240.

Albatross Collection. Length 150 to 315 mm. 12 examples.

U. S. N. M., No. 55241.

Albatross Collection ( ). Length 140 to 330 mm. 20 examples.

U. S. N. M., No. 55263.

Albatross Collection ( ). Length 178 to 269 mm. 6 examples.

Coryphaenoides awae Jordan and Gilbert

Coryphaenoides awae Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 608, fig., 1902 (1904) (type locality: off Nanaura in Awa, entrance to Tokyo Bay). — Jordan, Tanaka, Snyder, Journ. College Science, Tokyo, vol. 33, p. 416 (fig. 387 copied), 1913 (reference). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (143) 166, 1916 (type).

Coryphaenoides bairdii (Goode and Bean)

Macrourus bairdii Goode and Bean, Amer. Journ. Sci. Art., ser. 3, vol. 14, p. 471, 1877 (type locality: Gulf of Maine, 44 miles from Cape Ann). — Jordan and Evermann, Bull. U. S. Fish Comm., No. 47, pt. 3, p. 2583, 1898 (Copied). — Smith and Bean, in Howe, Bull. U. S. Fish Comm., vol. 19, p. 240, 1899 (1901) (lat. 39°58'30" to 40°4'39"N., long. 70°16' to 70°21'W., 95 to 198 fathoms).

Macrourus bairdi Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., pt. 2, p. 205, 1930 (reference).

Macrurus bairdii Goode, Proc. U. S. Nat. Mus., vol. 3, p. 337 (lat. 40°2'36"N., long.70°22'58"W., 155 fathoms), p. 475 (lat. 39°N., long. 70° to 71°"., 225 to 487 fathoms), 1880 (1881). — T. H. Bean, Amer. Journ. Sci. Arts, ser. 3, vol. 22, p. 296, 1881 (Fish Hawk Station, 160 to 506 fathoms). — Goode and Bean, Bull. Mus. Comp. Zool., vol. 10, pp. 188, 190, 191, 195, 1883 (Lat. 38° to 39°N., long. 70° to 73°, 197 to 740 fathoms). — Miner, Rep. U. S. U. S. Fish Comm., pt. 11, p. 184 (lat. 38° to 40°N., long 68° to 71° W., 197 to 2369 fathoms), 1883 (1885).

— Parker, in Benedict, Rep. U. S. Fish Comm., pt. 12, p. 100, 1884 to (1886)(lat. 39°N., long. 70° to 71°, 353 to 600 fathoms). — Günther, Rep. Voy. Challenger, vol. 22, p. 135, pl. 32, fig. 3, 1887 (western Atlantic). — Jordan, Rep. U. S. Fish Comm., pt. 13, p. 919, 1885 (1887)(name). — Tanner, Rep. U. S. Fish Comm., pt. 16, p. 632, 1886 (1889)(lat. 39° to 40°N., long. 67° to 72°W., 594 to 980 fathoms) Bull. U. S. Fish Comm., vol. 7, p. 156, 1887 (1889)(lat. 39°N., long 71°W., 705 to 1163 fathoms). — Goode and Bean, Oceanic Ichth., p. 393, pl. , fig. 335, 1895 (lat. 11° to 45°N., long 50° to 87° W., 9 to 1255 fathoms). — Garman, Mem. Mus. Comp. Zool., vol 24, P. 396, 1899 (reference).

Macrurus bairdi Jordan and Gilbert, Bull. U. S. Nat. Mus., No. 16, p. 812, 1883 (off New England).

Macrurus (Macrurus) bairdi Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, P. 389, 1906 (reference).

Lionurus bairdii Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference).

Depth 6 3/5 to 8; head 5 1/2 to 6 1/2, width 2 to 2 1/8. Snout to eye 3 to 3 1/5 in head, 1 1/8 to 1 1/5 in orbit; eye 3 to 4 1/3 in head, 1 to 1 1/3 in snout, 1 to 1 1/5 times interorbital; orbit 2 3/5 to 3 in head, greatly exceeds snout or interorbital; maxillary reaches 2/5 to 3/4 in eye, length from front end 2 1/3 to 3 1/3 in head; preoral length 3 1/6 to 4; mandibular barbel 1 2/5 to 2 1/2 in eye; teeth in villiform bands in jaws, in 4 to 6 irregular transverse series - of which outermost little enlarged though not set off from others; interorbital 3 3/5 to 4 1/4 in head, low and nearly level in front. Gill rakers 0+8, low spinescent tubercles on second arch, 1/3

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E. Wade

of gill filaments, which 2 1/6 to 3 in eye.

Scales 150 to 162 in lateral line; 8 or 9 above, 19 to 23 below, 33 to 42 predorsal of which 18 to 24 extend forward opposite hind edge of orbit. Scales with 18 to 28 irregular horizontal rows of long slender parallel spinules apically, last extending well beyond hind scale edge; circuli fine, not extended apically.

D. II, 11 — 123 to 140?, second ~~simple~~ simple ray slender, pungent, with row of antrorse serrae along front edge, length 1 to 1 1/2 in head; interdorsal space 1 2/3 to 1 3/4; A. 120 to 130, fin height 4 to 5; pectoral rays I, 14 or I, 15, fin 1 2/5 to 1 7/8 in head; ventral ~~rays~~ I, 6, fin 1 2/3 to 2 2/5.

Largely uniform dark brownish. Iris pale brown. Inside mouth pale. Inside gill opening blackish brown. Lower or under surface of head about branchiostegals blackish brown. Fins brownish to dusky.

Off eastern North America in Gulf Stream. In this very abundant species many specimens have the scales firmly adherent, even after long preservation in alcohol. Their coloration is quite uniform and with little contrast, often the breast and belly scarcely darker.

U. S. N. M., No. 2428.

Length 700 mm.

U. S. N. M., No. 21014.

North Atlantic.

U. S. Fish Comm. Length mm. Type of Macrourus bairdii.

U. S. N. M., No. 23150.

U. S. F. Comm. T.177. 1878. Length 329 mm.

U. S. N. M., No.23151.

U. S. F. Comm. T.178. 1878. Length 183mm.

U. S. N. M., No. 23152.

U. S. F. Comm. T.178. 1878. Length 197mm.

U. S. N. M., No. 26065. Off Newport, Rhode Island. 1880.

Length 170 to 340 mm. 7 examples.

U. S. N. M., No. 26110. Lat. 39°57'N., long. 70°56' to 57'W. In 225 fathoms. September 13, 1880. Fish Hawk Collection (879). Length 131 to 331? mm. 3 examples.

U. S. N. M., No. 26163. Off Newport, Rhode Island. September 25, 1880. U. S. F. Comm. Length 70 to 102 mm. 6 examples.

U. S. N. M., No. 26166. Off Newport, Rhode Island. In 372 fathoms. October 2, 1880. Fish Hawk Collection (893). Length

35? to 78? mm. 3 examples.

U. S. N. M., No. 26187. Off Newport, Rhode Island. In 372 fathoms. October 2, 1880. Fish Hawk Collection (893). Length 170 mm.

U. S. N. M., No. 24401. Lat. 44°2'N., long. 59°W. In 300 fathoms. September 1879. Captain Philip Merchant. Schooner "Marion". U. S. Fish Comm. (No. 492). Length 204? mm. Very poor specimen.

U. S. N. M., No. 24402. Lat. 44°3'N., long. 58°26'W. In 250 fathoms. September 1879. Captain George H. Johnson. Schooner "Augusta H. Johnson". U. S. Fish Comm. (no. 502). Length 190? mm.

U. S. N. M., No. 24730. Lat. 44°30'N., long. 57°10'W., east Banquereau. In 213 fathoms. October 15, 1879. Capt. Philip Merchant. Length 310? mm.

U. S. N. M., No. 26062. Off Newport, Rhode Island. 1880. U. S. F. Comm. (879-880). Length 165 to 317? mm. 5 examples.

U. S. N. M., No. 26193. Off Newport, Rhode Island. In 487 fathoms. October 2, 1880. Fish Hawk Collection (892). Length 198 to 310 mm. 9 examples.

U. S. N. M., No. 26194. Off Newport, Rhode Island. In 372 fathoms. October 2, 1880. Fish Hawk Collection (893). Length 335 mm.

U. S. N. M., No. 26198. Off Newport Rhode Island. In 365 fathoms. October 12, 1880. Fish Hawk Collection.(894). Length 335 mm.

U. S. N. M., No. 26212. Off Newport, Rhode Island. October 2, 1880. Fish Hawk Collection. Length 100 to 124 mm. 4 examples.

U. S. N. M., No.,,No. 26217. Off Newport, Rhode Island. In 365 to 487 fathoms. Fish Hawk Collection (891 to 894). Length 178 to 336 mm. 16 examples.

U. S. N. M., No. 26348. Grand Banks. Morrisey. Length 300 mm. In poor condition.

U. S. N. M., No. 26734. Lat. 37° 24' N., long. 74°17'W. In 300 fathoms. November 16, 1880. Fish Hawk Collection (898). Length 239 mm.

U. S. N. M., No. 28722. Lat. 39°55'N., long. 70°49'W. In 224 fathoms. July 16, 1883. Fish Hawk Collection (935). Length 125 to 243 mm. 5 examples.

U. S. N. M., No. 28773. Lat. 39°tl'N., long. 69°49'15"W.
August 4, 1881. U. S. Fish Comm (938). Length 57 to 82 mm. 3 examples.

U. S. N. M., No. 28787. Lat 39°49'25"N., long. 49°49'W.
July 16, 1881. U. S. Fish Comm.
Length 16, 1881. (This is apparently a mistake).

U. S. N. M., No. 28789. Lat. 39°57'30"N., long. 69°51'30"W.
August 4, 1881. U. S. Fish Comm. (940). Length 110 mm.

U. S. N. M., No. 28892. Lat. 39°50'30"N., long 71°23'. Sept. 8, 1881. U. S. Fish Comm. (1020). Length 63 to 93 mm. 3 examples.

U. S. N. M., No. 28896. Lat. 39°42'N., long 71°32'W.
September 8, 1881. U. S. Fish Comm. (997). Length 78 mm.

U. S. N. M., No. 28903. Lat. 39°45'13"N., long 71°30"W.
U. S. Fish Comm. (925). Length 153 mm.

U. S. N. M., No. 28909. Lat. 39°45'13"N., long. 71°25"W.
U. S. Fish Comm. (1025). Length 95 to 108 mm. 2 examples.

U. S. N. M., No. 28913. Lat. 39°40'N., long 71°30'.
September 8, 1881. U. S. Fish Comm. (994).
Length 280 mm.

U. S. N. M., No. 28931. Lat. 39°57'N., long. 69°17'W.
September 14, 1881. U. S. Fish Comm. (1028).
Length 142 to 150 mm. 2 examples.

U. S. N. M., No. 29049. Lat. 38°35'N., long. 73°13'W. In 312 fathoms. October 10, 1881. Fish Hawk Collection (1045). Length 170 to 266? mm. 3 examples.

U. S. N. M., No. 29078. Lat. 38°28'N., long. 73°22'W. In 435 fathoms. October 10, 1881. Fish Hawk Collection (1049). Length 157 to 257 mm. 3 examples.

U. S. N. M., No. 31530. Cape Cod Light House S. W. 3/4W. distant 13 miles. In 110 fathoms.
U. S. Fish Comm. (1090). Length 164 mm.

U. S. N. M., No. 31605. Lat. 39°58'N., long. 69°42'W. In 202 fathoms. 1882. U. S. Fish Comm. (1092). Length 273?mm.

U. S. N. M., No. 31611. Lat. 39°56'N., long 69°45"W. In 349 fathoms. 1882. U. S. Fish Comm. (1093). Length 182 mm.

U. S. N. M., No. 31643. Lat. 39°57'N., long 70°37"W. In 192 fathoms. August 12, 1882. U. S. Fish Comm. (1113). Length 165 to 194 mm. 2 examples.

U. S. N. M., No. 31646. Lat. 39°56'N., long. 70°35"W. In 245 fathoms. August 18, 1882. U. S. Fish Comm. (1112). Length 190? mm.

U. S. N. M., No. 31657. Lat. 37°16'30"N., long. 74°26'36"W. March 23, 1883. Albatross Collection (haul 3). Length 147 mm.

U. S. N. M., No. 31718. Lat. 40°1'N., long. 68°54'W. In 640 fathoms. August 26, 1882. U. S. Fish Comm. (1124). Length 345 mm.

U. S. N. M., No. 31721. Lat. 40°5'N., long. 68°49'W. In 234 fathoms. August 26, 1882. U. S. Fish Comm. (1121). Length 219 mm.

U. S. N. M., No. 31731. Lat. 40°3'N., long. 68°56'W. In 291 fathoms. August 26, 1882. U. S. Fish Comm. (1125). Length 127 to 133 mm. 2 examples.

U. S. N. M., No. 31736. Lat. 40°4'N., long. 68°59'W. In 234 fathoms. August 26, 1882. U. S. Fish Comm. (1121). Length 205? mm.

U. S. N. M., No. 31746. Lat. 39°59'45"N., long. 68°54'W. In 787 fathoms. August 26, 1882. U. S. Fish Comm. (1123). Length 352 mm.

U. S. N. M., No. 31855. Lat. 39°54'N., long 70°37'W. In 225 fathoms. October 4, 1882. U. S. Fish Comm. (1153). Length 316 to 338? mm. 2 examples.

U. S. N. M., No. 31866. Lat. 39°52'N., long. 70°30'W. In 554 fathoms. 1882. U. S. Fish Comm. (1155). Length 316 mm.

U. S. N. M., No. 32656. Lat. 37°16'30"N., long. 74°26'36"W. March 23, 1883. Albatross Collection (haul 3). Length 120 to 175? mm. 4 examples.

U. S. N. M., No. 32808. Lat. 36°41'5"N., long. 74°38'55"W. May 1, 1883. Albatross Collection (2014). Length 178 to 242 mm. 2 examples.

U. S. N. M., No. 33006. Lat. 39°57'50"N., long. 70°32'W. May, 1883. Albatross Collection (2025). Length 360 mm.

U. S. N. M., No. 33008. Lat. 40°2'N., long. 70°27'W.
May 1883. Albatross Collection (2025). Length 360 mm.

U. S. N. M., No. 33037. Lat. 39°57'50"N., long 70°23'.
May 1883. Albatross Collection (2028). Length 285 mm.

U. S. N. M., No. 33326. Lat. 40°2'N., long. 68°50'30"W. In 547 fathoms. July 31, 1883. Albatross Collection (2048). Length 292 mm.

U. S. N. M., No. 33387. Lat. 41°10'N., long 66°47'45"W.
August 31, 1883. Albatross Collection (2061). Length 279 to 290 mm. 2 examples.

U. S. N. M., No. 33392. Lat. 41° N., Long. 65° ".
Length 370 to 408 mm. 2 examples. As Macrurus asper.

U. S. N. M., No. 33397. Lat. 42°2'N., long. 68°27'W. In 105 fathoms. August 29, 1883. Albatross Collection (2053). Length 280? mm.

U. S. N. M., No. 33410. Lat. 42°23'N., long. 66°23'W. In 141 fathoms. August 31, 1883. Albatross Collection (2062). Length 157 to 298 mm. 6 examples.

U. S. N. M., No. 33450. Lat. 41°53'N., long. 65°35'W. In 858 fathoms. Sept. 2, 1883. Albatross Collection (2072). Length 268 to 383 mm. 8 examples.

U. S. N. M., No. 33456. Lat. 41°9'40"N., long. 66°2'20"W. In 1255 fathoms. September 4, 1883. Albatross Collection (2077). Length 358 to 376? mm. 2 examples.

U. S. N. M., No. 33513. Lat. 39°58'35"N., long. 71°00'30"W. In 197 fathoms. September 21, 1883. Albatross Collection (2092). Length 95 to 213 mm. 6 examples.

U. S. N. M., No. 35427. Lat. 39°25'50"N., long. 71°49'30"W. In 523 fathoms. July 23, 1884. Albatross Collection (2180). Length 246 to 323 mm. 6 examples.

U. S. N. M., No. 35430. Lat. 37°59'30"N., long 73°48'40"W. July 20, 1884. Albatross Collection (2171). Length 220 to 250 mm. 3 examples.

U. S. N. M., No. 35432. Lat. 38°1'15"N., long. 73°44'W. In 568 fathoms. July 20, 1884. Albatross Collection (2172). Length 190 to 270 mm. 2 examples.

U. S. N. M., No. 35434. Lat. 39°29'N., long. 71°46'". In 693 fathoms. July 23, 1884. Albatross Collection (2181). Length 270? to 323 mm. 4 examples.

U. S. N. M., No. 35435.

Length 392 mm.

U. S. N. M., No. 35477. Lat. 39°52'15"N., long. 70°55'30"W. In 353 fathoms. August 2, 1884. Albatross Collection (2186). Length 321 to 365? mm. 4 examples.

U. S. N. M., No. 35487. Lat. 39°49'30"N., long 70°26'W. In 600 fathoms. August 4, 1884. Albatross Collection (2189). Length 275? to 316 mm. 3 examples.

U. S. N. M., No. 35503. Lat. 39°32'30"N., long 72°21'30"W. July 22, 1884. Albatross Collection (2176). Length 227 to 275 mm. 5 examples.

U. S. N. M., No. 35504.

Length 327 mm.

U. S. N. M., No. 35505.

Length 473 mm.

U. S. N. M., No. 35506. Lat. 39°29'N., long. 72°5'15"W. In 229 fathoms. July 22, 1884. Albatross Collection (2178). Length 115 to 300 mm. 4 examples.

U. S. N. M., No. 35548. Lat. 39°38'N., long. 71°39'45"W. In 515 fathoms. August 19, 1884. Albatross Collection (2202). Length 365 mm.

U. S. N. M., No. 35565.

Length 280 mm?

U. S. N. M., No. 35588.

Length 376 mm.

U. S. N. M., No. 35605.

Length 475 mm.

U. S. N. M., No. 35648.

Length 352 mm.

U. S. N. M., No. 35654.

Length 288 to 297 mm.

U. S. N. M., No. 35685. Lat. 39°54'45"N., long. 69°29'45"W. In 250 fathoms. September 28, 1884. Albatross Collection (2262). Length 310 to 310 mm. 2 examples.

U. S. N. M., No. 38065. Lat. 38°56'N., long. 73°11'30"W. In 813 fathoms. September 20, 1886. Albatross Collection (2721). Length 268 mm.

U. S. N. M., No. 38066. Lat. 38°24'N., long. 71°52'W. In 1,569 fathoms. September 19, 1886. Albatross Collection (2718). Length 376 mm.

U. S. N. M., No. 38105. Lat. 40°6'N., long. 68°1'30"W. In 984 fathoms. August 28, 1886. Albatross Collection (2710). Length 386 mm.

U. S. N. M., No. 38155. Lat. 36°45'N., long. 74°28'30"W. In 781 fathoms. October 25, 1886. Albatross Collection (2731). Length 260 mm.

U. S. N. M., No. 38179. Lat. 37°23'N., long. 74°2'W. In 811 fathoms. October 26, 1886. Albatross Collection (2735). Length 225 mm.

U. S. N. M., No. 38180. Lat. 37°27'N., Long. 73°33'W. In 1,152 fathoms. October 26, 1886. Albatross Collection (2732). Length 195 to 319 mm. 9 examples.

U. S. N. M., No. 39231. Lat. 39°42'N., long. 71°17'W. In 705 fathoms. September 19, 1887. Albatross Collection (2749). Length 320 mm.

U. S. N. M., No. 39250. Lat. 38°35'N., long. 73°5'15"W. In 554 fathoms. September 18, 1887. Albatross Collection (2744). Length 201 to 293 mm. 2 examples.

U. S. N. M., No. 39251. Lat. 38°35'N., long. 73°5'15"W. In 554 fathoms. September 18, 1887. Albatross Collection (2744). Length 194 mm.

U. S. N. M., No. 39257. Lat. 38°42'N., long. 73°5'30"W. In 224 fathoms. September 18, 1887. Albatross Collection (2745). Length 138 mm.

U. S. N. M., No. 45703. Lat. 39°53'30"N., long. 70°17'30"W. August 8, 1885. Albatross Collection (2546). Length 140 to 190 mm. 3 examples.

U. S. N. M., No. 45704. Lat. 40°02'N., long 70°27'W. May 25, 1883. Albatross Collection (2025). Length 140 to 190 mm. 4 examples.

U. S. N. M., No. 45705. Lat. 30°44'N., Long. 79°36'W.

April 1, 1885. Albatross Collection (2415). Length 111 to 212 mm. 9 examples.

U. S. N. M., No. 45706. Lat. 35°40'N., long. 74°51'33"W.

October 20, 1884. Albatross Collection (2299). Length 193 to 219 mm.

U. S. N. M., No. 45707. Lat. 43°34'N., long. 63°56'30"W.

July 11, 1885. Albatross Collection (2513). Length 208 to 218 mm. 3 examples.

U. S. N. M., No. 45708. Lat. 39°54'30" N., long. 70°20'W.

August 8, 1886. Albatross Collection (2547). Length 115 to 198 mm. 4 examples.

U. S. N. M., No. 45709. Lat. 31°26'N., long. 79°7'W.

April 1, 1885. Albatross Collection (2416). Length 105? to 210 mm. 10 examples.

U. S. N. M., No. 45710. Lat. 28°36'15"N., long. 86°50'W.

March 13, 1885. Albatross Collection (2395). Length 185 to 228 mm. 3 examples.

U. S. N. M., No. 45711. Lat. 28°34'N., long. 86°48'W.

March 13, 1885. Albatross Collection (2396). Length 235 mm.

U. S. N. M., No. 45712. Lat. 39°48'30"N., long. 70°40'30"W.

August 9, 1885. Albatross Collection (2554). length 165 to 316 mm. 2 examples.

U. S. N. M., No. 45713. Lat. 28°42'N., long 86°36'W.

Albatross Collection (2397). Length 140 mm.

U. S. N. M., No. 45714. Lat. 39°33'N., long. 72°18'30"W.

July 22, 1884. Albatross Collection (2175). Length 118 to 133? mm. 2 examples.

U. S. N. M., No. 45715. Lat. 39°58'25"N., long. 70°37'W.

May 25, 1883. Albatross Collection (2027). Length 152 to 310 mm. 3 examples.

U. S. N. M., No. 45716. Lat. 39°56'45"N., long. 70°50'30"W.

August 7, 1885. Albatross Collection (2537). Length 73 to 80 mm. 3 examples.

U. S. N. M.,No.45717. Lat. 35°40'N., long. 74°51'30"W.

October 20, 1884. Albatross Collection (2299). Length 150 to 189 mm. 2 examples.

U. S. N. M., No. 45718. Lat. 44°34'N., long. 56°41'45"W.

July 4, 1885. Albatross Collection (2471). Length 178 mm.

U. S. N. M., No. 45730. Lat. 47°40'N., long 47°35'30"W.

August 12, 1886. Albatross Collection (2697). Length 114 to 194 mm. 7 examples.

U. S. N. M., No. 45731. Lat. 39°53'30"N., long 70°17'30"W. In 538 fathoms. August 8, 1885. Albatross Collection (2546). Length 200 to 298 mm. 2 examples.

U. S. N. M., No. 45732. Lat. 28°34'N., long. 86°48'W.

March 13, 1885. Albatross Collection (2396). Length 162 to 267 mm. 2 examples.

U. S. N. M., No. 45733. Lat. 40°53'30"N., long. 66°24'W.

July 14, 1885. Albatross Collection (2530). Length 303 mm.

U. S. N. M., No. 45735. Lat. 40°16'30"N., long. 67°26'15"W.

July 15, 1885. Albatross Collection (2533). Length 328 to 390 mm.

U. S. N. M., No. 45736. Lat. 28°38'30"N., long. 87°2'W.

March 13, 1885. Albatross Collection (2394). Length 255 to 258 mm.

U. S. N. M., No. 45737. Lat. 26°N., long. 83°47'30"W.

March 19, 1885. Albatross Collection (2413). Length 283? mm.

U. S. N. M., No. 45738. Lat. 28°47'30"N., long. 87°27'W.

May 13, 1885. Albatross Collection (2392). Length 290 mm.

U. S. N. M., No. 45739. Lat. 41°47'N., long. 65°37'30"W.

July 13, 1885. Albatross Collection (2528). Length

325 mm.

U. S. N. M., No. 45740. Lat. 39°53'30"N., long. 50°51'W. June 23, 1885. Albatross Collection (2429). Length 235 to 402 mm. 4 examples.

U. S. N. M., No. 45743. Lat. 39°47'07"N., long. 70°35'W. August 9, 1885. Albatross Collection (2552). Length 275 to 286? mm. 3 examples.

U. S. N. M., No. 45776. Lat. 32°24'N., long. 76°55'30"W. October 21, 1885. Albatross Collection (2628). Length 222 to 267? mm. 2 examples.

U. S. N. M., No. 45778. Lat. 39°46'N., long. 71°19'W. July 18, 1886. Albatross Collection (2687). Length 120 to 225 mm. 5 examples.

U. S. N. M., No. 45779. Lat. 47°50'N., long. 47°35'30"W. August 12, 1886. Albatross Collection (2697). Length 250 to 333 mm. 5 examples.

U. S. N. M., No. 45780. Lat. 39°50'N., long. 70°26'W. July 16, 1886. Albatross Collection (2680). Length 130? to 276 mm. 2 examples.

U. S. N. M., No. 45781. Lat. 44°50'N., long. 56°19'30"W.

August 22, 1886. Albatross Collection (2702).

Length 212 to 235 mm. 4 examples.

U. S. N. M., No. 45822. Lat. 32°36'N., long. 77°29'15"W.

October 21, 1885. Albatross Collection (2624). Length 50 to 132 mm. 25 examples.

U. S. N. M., No. 45823. Lat. 32°27'30"N., long. 77°20'30"W.

October 21, 1885. Albatross Collection (2626).

Length 200 to 228 mm. 3 examples.

U. S. N.M., No. 45840. Lat. 32°39'N., long. 76°50'30"W.

May 6, 1880. Albatross Collection (2677). Length 250 mm.

U. S. N. M., No. 45841. Lat. 32°39'N., long. 77°1'W.

May 6, 1886. Albatross Collection (2676). Length 184 to 270 mm. 4 examples.

U. S. N. M., No. 45842. Lat. 28°21'N., long 78°33'W.

May 3, 1886. Albatross Collection (2658). Length 208 to 280 mm. 5 examples.

U. S. N. M., No. 45843. Lat. 28°40'N., long 78°46'W.

May 3, 1886. Albatross Collection (2660). Length 88 to 180 mm. 4 examples.

U. S. N. M., No. 45927. Lat. 41°53'N., long. 65°35'W.

September 2, 1883. Albatross Collection (2072).

Length 362 mm.

U. S. N. M., No. 46807. Lat. 35°40'N., long. 74°51'W.

October 20, 1884. Albatross Collection (2299).

Length 85 to 147 mm. 2 examples.

U. S. N. M., No. 48578.

Length 500 mm.

U. S. N. M., No. 48627.

Length 386 mm.

U. S. N. M., No. 74319. Lat. 39°2'40"N., long. 72°40'W.

September 1885. Albatross Collection (2586).

Length 73 to 168 mm. 12 examples.

U. S. N. M., No. 74320. Lat. 39°50'N., long. 71°43'W.

Albatross Collection

(2582). Length 102 to 104 mm. 2 examples.

U. S. N. M., No. 76843. Gulf of St. Lawrence. June 26, 1915.

O. G. Huntsman. Toronto University.

Length 241 mm.

U. S. N. M. 1 example.

Albatross Collection (2228). Length 200 mm.

U. S. N. M., 1 example.

Albatross Collection (2393). Length 280 mm.

U. S. N. M., 7 examples. Lat. 39°22'N., long. 71°23'30"W. In 1,390 fathoms. August 11, 1885. Albatross Collection (2564). Length 267 to 368 mm.

U. S. N. M., 1 example. Lat. 39°15'N., long. 68°8'W. In 1,782 fathoms. August 31, 1885. Albatross Collection (2568). Length 460 mm. This example with swollen abdomen and anal origin begins behind end of depressed pectoral tip.

U. S. N. M., 7 examples. Lat. 39°54'N., long 67°5'30"W. In 1,813 fathoms. September 1, 1885. Albatross Collection (2570). Length 215 to 355 mm.

U. S. N. M., 4 examples.

Albatross Collection (2584). Length 245 to 288 mm.

U. S. N. M., 8 examples.

Albatross Collection (2589). Length 68 to 226 mm.

U. S. N. M., 4 examples. No data. Length 160 to 404 mm.

Coryphaenoides berglax (lacépède)

Macrourus berglax Lacépède, Hist. Nat. Poiss., vol. 3, p. 169, pl. 10, fig. 1, 1800 (type locality: Greenland; Söndmore).

—Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., pt. 2, p. 205, 1930 (reference).

Macrurus berglax Jordan, Rep. U. S. Fish Comm., pt. 13, p. 919, 1885 (1887) (reference).

—Goode and Bean, Oceanic Ichth., p. 391, pl. , fig. 334, 1895 (Gulf Stream, 677 fathoms). —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2582, 1893 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 396, 1899 (reference).

Macrurus (Macrurus) berglax Brauer, Deutsch. Tiefsee Exped. Valdivia. vol. 15, p. 390, 1906 (reference).

Coryphaenoides berglax Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference).

Coryphaena rupestris (not Gunner) Muller, Prodr. Zool. Dan., p. 43, 1776 (Norway). — Fabricius, Faun. Groenland, p. 154, 1780 (Greenland). — Gmelin, Syst. Nat. Linn., pt. 1, p. 1,195, 1789 (Greenland). — Walbaum, Artedi Pisc., vol. 3, p. 104, 1792 (on Fabricius).

Macrourus rupestris Bloch, Naturges. Ausl. Fische, vol. 2, p. 152 pl. 177, 1786 (Tunnodliorbils Harbor). — Bonnaterre, Tabl. Ichth., p. 62, pl. 35, fig. 133, 1788 (Greenland). — Walbaum, Artedi Pisc., vol. 3, p. 670, 1792 (on Bloch). — Shaw and Nodder, Natural. Miscellany, vol. 12, pl. 462, 1800 (northern seas).

Macrurus rupestris Gill, Cat. Fishes East Coast U. S., p. 49, 1861 (name). — Günther, Cat. Fishes Brit. Mus., vol. 4, p. 390, 1862 (Greenland). — Gill, Rep. U. S. Fish Comm., pt. , p. 795, 1871 (1873) (name).

Macrurus (Coryphaenoides) rupestris Murray and Hjort, Depths of the Ocean, p. 397, 1912 (Faroe-Shetland Channel; Faroe Bank; 750 to 840 meters).

Macrourus fabricii Sundevall, Vet. Akad. Handl. Stockholm, p. 6, 1840 (type locality-).

Macrurus fabricii Goode, Proc. U. S. Nat. Mus., vol. 3, p. 475, 1880 (off Gravesend, New York). — Jordan and Gilbert, Bull. U. S. Nat. Mus., No. 16, p. 811, 1883 (compiled). — Günther, Rep. Voy. Challenger, vol. 23, p. 130, 1887 (Finnmarken, Greenland, New England). — Smitt, Scandinav. Fishes, vol. 2, p. 587, fig. 140, 1895 (Tromso; Hammerfest).

Depth 5 2/5 to 6 1/5; head 4 1/5, width 1 1/2 to 1 7/8. Snout to eye 2 7/8 to 3 1/8 in head; eye 4 2/3 to 5, 1 1/2 to 2 in snout, greater than interorbital; orbit 3 to 3 2/5 in head, 1 to 1 1/5 in snout; maxillary reaches 1/2 to 3/4 in eye, length from front end 2 4/5 to 3 in head; mandibular barbel 1 1/5 to 1 1/3 in eye; teeth small, strong, alike, conic, short, 4 to 6 irregular transverse rows in jaws; interorbital 5 2/3 to 6 in head, low, depressed medially. Gill rakers 9 +7, low spinescent tubercles on second arch, 1/2 of gill gilaments, which 1/4 of eye.

Scales 117 to 120 in lateral line to pseudocaudal; 6 or 7 above, 17 below, 13 predorsal forward 2/3 to hind edge of orbit. Scales with spinuliferous horizontal apical keel, last spine longest and extends well behind scale edge; circuli fine, not extended apically.

D. II, 10 — 112 to 125, second ~~simple~~ simple ray entire or with row of low feeble points along its front edge, length 1 3/5 to 2 in head; interdorsal space 5 3/5 to 6 1/3; A. 115 to 130, fin height 3 1/3 to 4; pectoral rays I, 18, fin 1 3/4 to 2 in head; ventral rays I, 7, fin 3 to 3 1/2.

Largely uniform brown. Iris pale or brown. Inside mouth brown and inside gill opening blackish brown. Fins all brown. Many examples show gray to dark neutral gray about opercles below.

North Atlantic. This species is quite variable with age though as pointed out by Goode and Bean it is distinguished from Coryphaenoides bairdii by its longer snout and more posterior postion of the vent. It is also known by its large rough scales, the spines forming into longitudinal rows.

U. S. N. M., No. 21615

Length 758 mm.

U. S. N. M., No. 22268.

Length 850 mm.

U. S. N. M., No. 22287.

Length 580? mm.

U. S. N. M., No. 22874.

R. E. Earll. 2932 Length 445 mm. In poor condition.

U. S. N. M., No. 28604. Off Grand Banks. Gloucester Schooner Johnson. U. S. Fish Comm. (972). June 22, 1880. Length 553 to 755 mm. 3 examples.

U. S. N. M., No. 28605. No locality. Gloucester Schooner Johnson. May 11, 1880. U. S. Fish Comm. (962). Length 542 to 600 mm. 2 examples.

U. S. N. M., No. 33427. Lat. 41°53'N., long. 65°35'W. In 858 fathoms. September 2, 1883. Albatross Collection (2072). Length 740 mm.

U. S. N. M., No. 38063. No locality. Grampus Collection. September 1886. Length 900 mm.

Coryphaenoides boops (Garman)

Macrurus boops Garman, Mem. Mus. Comp. Zool., vol. 24, p. 202 (396), 1899 (type locality : lat. 7°21'N., long. 79°35', 511 fathoms, off Colombia; lat. 7°9'N., long. 81°8'30"W., 546 fathoms).

Macrurus (Macrurus) boops Brauer, Deutsch. Tiefsee Exped. Valfivia, vol. 15, p. 388, 1906 (reference).

Macrourus boops Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., pt. 2, p. 205, 1930 (reference).

Coryphaenoides boops Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 143, 1916 (reference).

Coryphaenoides brevibarbis (Goode and Bean)

Chalinura brevibarbis Goode and Bean, Oceanic Ichth., p. 413, 1895 (type locality : lat. 41°9'40"N., long. 66°2'20'W., Gulf Stream, 1255 fathoms; lat. 38°to41°N., long. 60° to 71°W., 956 to 1731 fathoms).

—Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference).

Macrurus (Chalinura) brevibarbis Murray and Hjort, Depths of the Ocean, p. 398, 1912 (lat. 45°26'N., long. 9°20'W., 2570 fathoms).

Coryphaenoides brevibarbus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 142, 1906 (reference).

Depth 5 to 6; head 4 1/4 to 5, width 1 7/8 to 2. Snout 3 1/2 to 4 1/4 in head; eye 6 to 6 1/2, 1 2/5 in snout, 1 1/3 to 1 3/4 in interorbital; maxillary reaches 4/5 to or opposite hind eye edge, expansion 1 to 1 1/5 in eye, length from front end 2 1/4 to 2 2/5 in head; upper teeth in villiform band with 7 or 8 irregular rows transversely and outer row of enlarged curved canine like teeth; lower teeth in row of similar canines below, but no villiform teeth; interorbital 3 1/4 to 4 1/2 in head, low, convex. Gill rakers 0+9 low spinescent tubercles on second gill arches, 2 1/5 in. in gill filaments, which 1/2 in eye.

Scales (pockets) 100 to 124 in lateral line to pseudocaudal; 7 or 8? above, 22 below. Scales with 7 or 8 slightly convergent apical series of spinules, last of which extend beyond scale edge; circuli moderate, fine, complete.

D. II, 8____76 to 105?, second ~~simple~~ *simple* ray slender, with row of small antrorse serrae along front edge, length 1 1/3? to 1 2/5? in head; interdorsal space 3 1/5 to 3 2/3; A. 82 to 110?, fin height 3; pectoral rays I, 12 to I, 15, fin 1 1/3 to 1 7/8 in head; ventral rays I, 8, fin 1 1/4 to 2.

Largely uniform brown. Head paler, opercle and branchiostegal region gray to blackish. Iris gray. Inside mouth and gill opening black.

Western North Atlantic.

U. S. N. M., No. 32272.

Length 353 mm.

U. S. N. M., No. 33269.

Length 310 mm.

U. S. N. M., No. 33449.

Albatross Collection (2072). Length 410 mm.

U. S. N. M., No. 33453. Lat. 41°9'40"N., long. 66°2'20"W. September 4, 1883. Albatross Collection (2077). Length 270 to 325 mm. Five examples, of which one type and others paratypes.

U. S. N. M., No. 35560.

Albatross Collection (2210). Length 333 mm.

U. S. N. M., No. 38166. Lat. 36°35'N., long. 74°3'W.

Albatross Collection. Length 270 mm.

U. S. N. M., No. 47501.

Albatross Collection (2630). Length 767 mm.

U. S. N. M., No. 83323. Lat. 38° N., long. 68° W.

Albatross Collection. Length 410 mm.

U. S. N. M., No. 84539.

Albatross Collection (2568). Length 306 mm.